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PRESIDENT OF THE COLLEGE AND CONSULTING PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL.

SIR HUMPHRY ROLLESTON AND FELLOWS OF THE COLLEGE,—I have, as a first duty, to tender to you, Sir, my thanks for entrusting to me the honourable office of delivering, in accordance with the wishes of Harvey, the annual oration commemorating the benefactors of this College. It is a striking tribute to the greatness of Harvey that, notwithstanding the lapse of time and notwithstanding the great benefactions received by this College from other pious founders from remote to very recent times, this oration has become more and more a tribute to the unparalleled services rendered by William Harvey not merely to this College but to mankind. This great result is, no doubt, in part dependent upon the greatness and brilliance of Harvey's discoveries as to the existence of the circulation, and the unravelling of some of the mystery surrounding the heart-beat, but it is due still more to the great conceptions he formed as to the proper methods to follow in attempting to understand the facts of Nature. It is probable that it is no exaggeration to say that the greatest and the most valuable benefaction this College has ever received, is Harvey's exhortation to the Fellows and Members of the College to search and study out the secrets of Nature by way of experiment, coupled with the example afforded by his own life's work.

Harvey, like most great men, was of so modest a character that he had little idea of the great place he himself would occupy in the history of science, and this exhortation of his, together with his desire that the Fellows of his beloved College should continue in mutual love and affection amongst themselves, was doubtless only an expression of his wishes for the successful development of this College, and thus indirectly of medicine as a whole.

THE GREATNESS OF HARVEY.

Successive Harveian orators during the last 200 years have striven to honour his memory and his services, in a series of orations dealing with different aspects of his life and work, or with the progress of scientific knowledge since his day, and the influence of this on mankind and on civilisation. Scholars have brought before us the state of medical knowledge in his time, and have also vividly portrayed the mode of his life and the conditions under which he worked. We know, thanks to their labours, what manner of man he was, and what was the influence on him of the disturbed time in which he lived. These are matters of perennial interest, and his example of philosophic calm under conditions of great national anxiety cannot fail to be an example to all for all time.

Harvey's life-work illustrates, in a remarkable manner, the many-sided character of medicine when considered as a whole, and how the men who promote its advance are often men of wide attainments in many branches of knowledge. His greatness is shown by the fact that, notwithstanding the conditions prevalent in his time, he was able to so free himself from the traditions of the past and the influence of authority and dogma, as to lay the foundations of modern science by his insistence on the fundamental importance of experiment and of accuracy of observation. Different sciences afford different opportunities for the use of experiment as a means of discovery, but the founder of the science of physiology had, in his field of study, unlimited scope for this method of advance, as prior to Harvey but little had really been effected by experiment, although it had been used by many, even in ancient times. We reverence Harvey not only for the foundation of physiology as a science and for showing how its progress is to be effected, but, as Fellows of this College of Physicians, for making plain the intimate relationship which must exist between medicine, both as a science and as an art, and physiology. Harvey combined in himself the physician and the physiologist. This, with the lapse of time and the progress of knowledge, has become increasingly difficult, and this difficulty is one common, to a greater or less extent, to all branches of knowledge, but more especially when a field of work includes a science and an art. There is some danger of a catastrophe akin to that of the Tower of Babel involving the more narrow specialists of these later days, owing to the rapid development of the new languages required to describe the results achieved in some departments of knowledge.

THE FOUNDATION OF MEDICINE ON PHYSIOLOGY.

Although the great developments of knowledge make it more and more difficult for any one individual to have anything approaching complete and detailed information even in one branch, and still more so in more than one, yet there should be, on the other hand, less difficulty in acquiring a fuller grasp of fundamental principles. After all, the magnitude of any scientific discovery is to be measured rather by its influence on the genesis of these fundamental principles, often formulated as so-called laws, than on the mere solution of the particular problem investigated. The so-called physical sciences have had in the past an advantage in this respect over the biological, in that the mathematician, the astronomer, the physicist, and the chemist have had more in common than the morphologist, the physiologist, and the pathologist. But the progress of knowledge is gradually effecting a change in this respect, and it is becoming more and more easy for the followers of the different sides of biology to meet on common ground. It is not only becoming increasingly difficult to draw a hard-and-fast line between the problems investigated by the physiologist and those of the pathologist, but even the morphologist, whether zoological or botanical, is now pursuing with zeal purely physiological methods in order to further his science, even on its morphological side. Harvey, as a physiologist, would have rejoiced at these developments if he had known that the colour of an animal, and even its form and mass, to say nothing of its sex, were under the influence of, and capable of being modified by, the functional activity of certain glands.

Harvey was, as just stated, a physiologist and a physician who practised his profession, and was daily face to face with urgent and distressing problems, as we all are. We all agree that our improved methods of coping with these problems are ultimately dependent upon his great discovery; and it is a trite observation that medicine must be founded on physiology, and that the study of healthy processes must precede that of morbid ones.

Observation and Experiment.

But the debt of the art of medicine to the science of physiology is greater than this, and the value of physiology to medicine is not to be measured merely by the direct practical utility, great as it may be and has been, of individual physiological discoveries, even when these are, like Harvey's, of a truly epoch-making character. The art of medicine must of necessity be reared as a superstructure on the science of medicine unless it is to be indistinguishable from mere empiricism; and the science of medicine, like other sciences, can only be advanced by observation and by experiment. When we reflect on what has

been done in the past by the observation of our predecessors, from the most remote to recent times, we cannot fail to record our admiration of the great intellectual qualities that these observers must have possessed to have enabled them to achieve the results obtained. The knowledge of the natural history of disease is a subject of vast importance to the art of medicine, and one that can only be acquired by observation. Nevertheless, as the late Lord Moulton has well said, when we are reduced to observation science crawls. If we are to treat a disease successfully we must know a great deal more about it than its natural history—i.e., its course when it is allowed to pursue its career unchecked. Experiment as a method of furthering the progress of any given science is capable of achieving great results, and—again to quote Lord Moulton—"As soon as you can bring experiment to bear upon a subject you are free, but as long as you can merely observe, your progress is slow. The reason is that experiment is like cross-examination: you can put the question you want, and Nature always answers it."

Experiment, however, is not equally applicable to all sciences, and from the circumstances it is obvious that in medicine its scope must necessarily be limited. This is, doubtless, one of the reasons why the progress of the science of medicine has been slower than we could wish, but another is to be found in the profound complexity of the problems that have to be solved. This complexity is not only obvious in the consideration of broad general questions, such as the nature and causes of disease, or of individual diseases, but applies often to our daily work of the mere recognition of the nature of the malady in an individual patient. We are often baffled by the complexity of this, and nothing is more common in the experience of practitioners of our art than to find suddenly that what seems simple and obvious is by no means so. The complexity of the problems daily before us is apt to react on the mind of the physician and produce, even in this rather materialistic age, a tendency to regard the phenomena of life, and especially of disease, in an individual, as scarcely subject to the same rigid laws of cause and effect that we all recognise as binding in the physical world. If this belief, even in a modified and attenuated form, is once entertained, it causes a looseness of thought that is most inimical to the real progress of knowledge in medicine; and it is here that the study of physiology and the work of Harvey have rendered the greatest service to medicine. Harvey, by experimental work, by clear thinking, and by accurate observation, laid the foundations of physiology as a science, and those who have followed in his path have continually added to his foundations, so that now no one questions its right to rank as a science, and no one disputes the fundamental proposition that in physiology, as in physics, like causes produce like results. If the excitation of the vagus nerve causes stoppage of the beat of the heart in one case, and acceleration in another, or possibly in the same animal at another time, it is not, as Majendie thought, due to the variability of vital phenomena as such, but is due, as Bernard, the great exponent of "determinisme," taught, to the conditions not being really the same. It is perhaps superfluous to mention such an attitude of mind as regards physiology, but perhaps, even now, we are not altogether free from such a way of looking at things in human medicine, and Majendie's way of thinking has, perhaps, some followers. It is, of course, much more simple to render the conditions the same in physiological observations than in medicine, although even in physiology it is often difficult, as the discordant results of many competent observers show. In human medicine the difficulties are infinitely greater, and hence we should regard the results already achieved as a most remarkable monument to the acumen of clinicians, who must, in order to have obtained the results we are familiar with, have been possessed of exceptionally sound scientific methods of observation.

The Conditions of Progress.

The history of the progress of our knowledge of medicine affords countless instances of the extreme accuracy of observation possessed by the foremost clinicians of the day, but although their observations were often excellent and their descriptions leave little to be added to, their explanations of the observed facts were not of the same value. Variations observed in the course of maladies were often explained in an artificial and non-scientific manner, owing to the want of appreciation of this law that like causes produce like results, and that if the results are different in apparently similar cases, the real explanation is not some variability on the part of Nature, but that in reality, although the cases seem similar, there is some hitherto undiscovered difference. One type of thinking closes the door to further work and real progress; the other is one of the most fertile causes of discovery. Shrewd clinicians observed, long ago, that some cases of typhoid fever lasted four weeks, others were said to abort in two weeks; hence it was inevitable that a certain vagueness and uncertainty of belief should be entertained with regard to the action of the virus of this disease; and it is difficult not to think that such beliefs react on the mind and influence profoundly our outlook on problems that beset us, and on our methods of coping with them. The progress of inquiry shows that the differences in the duration of the febrile period of typhoid fever are, at any rate sometimes, due to the differences in the organisms causing the disease, and we now talk of the enteric group, including both typhoid and paratyphoid bacilli. It is quite true that this increase of knowledge does not settle the problem, as there still remains the question of the relation and origin of the paratyphoid group of organisms; but this progress of knowledge has had the effect of demonstrating that the duration of so-called typhoid fever is not a matter, so to speak, of chance, but depends—or may depend—on the specific nature of the organism causing the illness. The fact that one organism causes an illness of four weeks' duration, and another, quite distinct but allied one, causes an illness of two weeks' duration, is a very different matter, from the point of view of scientific medicine, than the statement that the illness of typhoid fever may last either four weeks or two weeks. The attitude of mind caused by one belief is calculated to cause a certain bewilderment of feeling and one both of hopelessness and helplessness of arriving at any definite attainment; the other encourages the inquirer that long-continued patient work may reveal, at any rate in part, the mystery, and show that the phenomena of disease, complex as they are, are nevertheless amenable to the same laws and conditions as those governing the biological and physical worlds. Further, the apparent variability of disease becomes, instead of an impediment, a spur to further inquiry, and a stimulus to research, and such inquiries are often rewarded by discoveries that add a definiteness to our knowledge that is of the greatest possible value. It would not have been possible for this attitude of mind to be developed in relation to the problems of medicine unless the study of physiology and of vital processes generally had been placed on the surest foundations by Harvey by the use of the experimental method, as it is this method, in its many developments, that has enabled us to see that in living things like causes produce like results, and that the exceptions are apparent only, not real.

The Debt of Medicine to Experimental Physiology.

Further, in the past there has been much theorising, both in physiology and in medicine, often on very insufficient data. The experimental method has afforded a very certain and conclusive test of the inaccuracy of much work of this nature, and such results, important as they are, are, nevertheless, of a negative character, and have sometimes led to the belief that there is some antagonism between experimental inquiry on the one hand and the result of

observational methods on the other. Doubtless much loose thinking and many erroneous deductions may occur as the result of the direct and immediate transference of experimental animal results to the explanation of the phenomena of human disease, but this, again, arises from neglect of the fundamental principle that the conditions in the two cases are not alike, and also that we constantly think the phenomena of disease to be much simpler than they really are, and are perpetually hankering after cut-and-dried explanations of what are, in reality, exceedingly complex phenomena. Far be it from me to minimise the direct and immediate gains to medical knowledge and to medical practice that have resulted from individual discoveries in experimental physiology, as, for example, the notable discoveries as to the functions of the thyroid and its secretion, and many others. Harveian orators have dealt with these in such an able fashion that it is superfluous to dwell on them, and I would urge to-day that perhaps of even greater importance is what I may call the general effect on medicine of the development of physiology as an exact science, and the influence that this will have, in the course of time, in making the science of medicine as exact and as worthy to be deemed a science as any other branch of natural knowledge. Clinical observation, when carried out by a great mind and in strict accordance with scientific method, has achieved most striking results, results which are entitled to our highest admiration when, as already stated, we consider the extreme difficulty of the problems and the scanty means at our command to solve them. Often, however, the results, great as they are and accurate as they are, lack the precision of detail that sometimes the experimental method is capable of supplying, and then the experimental method is responsible for the completion of that which has been truly founded by clinical observation.

Hughlings Jackson and Cerebral Localisation.

A striking illustration of this is afforded by the history of the discovery of what is known, shortly, as localisation of function in the cerebral cortex. Here the fundamental work was done by that great clinician and profound thinker, Hughlings Jackson; and when we reflect that by the study of a very limited number of cases of hemiplegia and of a series of cases of fits, and by the careful correlation of the phenomena observed during life with the lesions found after death, he was able to arrive at the conclusion that voluntary movements were represented in a certain area of the cortex, we have a magnificent example of the accurate and far-reaching deductions that may be drawn by a master-mind. Nevertheless, even in such a case as this, the subsequent experimental work was able to give a precision and supply a mass of detail that greatly enhanced the original fundamental discovery. So much is this the case that many came to think that cerebral localisation had been discovered solely by the experimental method, whereas the fundamental facts were really the outcome of clinical observation.

The greatness of Jackson's conceptions is well seen in the fact that he recognised that cortical localisation was concerned with the representation of movements and not of muscles, and, indeed, with a special kind of movement—namely, voluntary movement. In the earlier days of experimental work on this subject some confusion was introduced by certain observers falling into the error of looking for so-called centres for the representation of muscles, and it was only later that inhibition of antagonistic muscles, as well as contraction of other muscles, was also recognised as a matter of cortical representation. Anyone who has actually seen the movements called forth by the electrical excitation of the cerebral cortex will experience quite different mental impressions from those he will have felt by watching an epileptiform seizure, perhaps confirmed subsequently by seeing the position and nature of the lesion responsible for it. In the one case there is a definiteness and certainty that in the other is apt to be replaced, at the best, by a feeling of high probability. And yet, if we are to succeed in our endeavours to cope with the facts of Nature, we must aim at possessing certain and not probable knowledge. It may be that this is often, in our work at present, unattainable, but it is the great thing to aim for in all our work. Perhaps some of our mistakes in the practice of our art arise from not clearly differentiating between what we really know and what is only probable; and sometimes, perhaps, we speak with an apparent certainty about matters that are not, in our present state of knowledge, really as certain as we would like them to be. The touchstone of the experimental method of Harvey is a useful corrective whenever and wherever it may be applied to questions of this nature. The modern physiology of the central nervous system, investigated by the experimental method, affords a striking example of the extraordinary precision of knowledge that may be obtained by the use of this method, and, thanks to it, a flood of light has been thrown on the complex problems of the mechanisms involved in posture, equilibration, coördination of movement, and perhaps on the still more complex mechanisms associated with the highest functions of the brain. Nevertheless, in an oration associated with the name of Harvey it may perhaps be possible to illustrate the principles of the profound influence exerted by experimental physiology on medicine by seeking an example in that branch of physiology so closely associated with Harvey—namely, the beat of the heart.

The Experimental Method of Harvey applied to the Heart-beat.

I am not so much concerned to-day with giving a record of individually important discoveries that have been made from time to time whereby our knowledge has been increased and our power of recognising, and treating with some success, individual diseases, has been extended; but, rather, with the nature of the conceptions we form of the phenomena of heart disease as we see them clinically in the light of the exact modern physiology of the heart, as revealed by the use of the experimental method of Harvey.

The beat of the heart, from the earliest times to the present, has been looked upon as emblematic of life by poets, philosophers, and thinkers, and has always had an element of mystery and awe attached to it. No physician will deny that in disease there is much of apparent mystery in what may be called the natural history, or, if you will, the clinical course, of heart disease; further, that the clinical picture presented by individual cases, even where relatively simple lesions are present, is one with much individual variety, that the phenomena are complex and difficult to analyse, and hence there has been much uncertainty of opinion, both in diagnosis and in treatment. Such differences of opinion existed not only with reference to questions of interpretation or explanation, but even in reference to what we should now regard as mere questions of fact. There must be some present here to-day who will remember a controversy as to the actual time of occurrence of certain well-known murmurs associated with a common valvular disease. When the methods available for clinical observation led to such remarkable differences of opinion amongst physicians of recognised skill and ability, it is not strange that many keen and able minds should have felt that the problems of medicine were so difficult and so complex that it was beyond their power to really solve them with the means at their disposal; and this attitude of mind is one very inimical to the progress of our science and our art. The method of Harvey of seeking the secrets of Nature by way of experiment shed a flood of light on the problems that had baffled those who confined their methods to observation. Not only was this the case, but what is of supreme importance to recognise is the fact that many of the men who in recent times remodelled our conception of the nature of cardiac disease by the fundamental character of their discoveries of the

nature of the cardiac beat, were men who devoted their lives to the investigation of the facts of Nature with no other object in view than that of adding to knowledge for its own sake. Great as their discoveries were, they had no idea of their practical bearing on heart disease, and some of them, indeed, were men who had no knowledge of heart disease as such, and never undertook their work with any idea of adding to our knowledge of heart disease. Further, the discoveries of the pure clinicians, remarkable as they were for the acuteness of their observation, were largely dependent on making use of the methods and apparatus of the laboratory in the investigation of clinical problems. The polygraph and the electrocardiogram gave certain and accurate information where previously other methods of observation had led only to the dissemination of views, explanations, and theories of varying degrees of probability. It is one thing to be able to actually demonstrate beyond cavil that the auricle of the human heart in a living patient is in the state known to us as that of fibrillation, and another to talk of lack or failure of compensation, with no clear mental picture of the meaning of the words used. Anyone who has seen a fibrillating auricle in the living animal in the laboratory has a mental picture that is not easily forgotten, a picture of a singularly concrete and definite character, with an element of reality about it that cannot fail to be a useful reminder to him when he stands at the bedside of a patient suffering from the effects of this condition. It is, of course, quite true that the acute clinical observers of the past had recognised the clinical picture produced by this condition, and had described quite accurately some of its manifestations. We can but admire their acumen, but they were necessarily unable, owing to the lack of physiological knowledge and the want of adequate methods, to determine the true cause of the symptoms, and to correlate the lesion with its results. Hence the inevitable temptation, to some minds, to speculate and theorise vaguely instead of confining themselves to mere observation, and hence the further elaboration of more and more speculation and ultimately much confusion as to what was speculation and what was firmly established by observation. This has often been most harmful to the real progress of medicine, owing to the development of loose methods of reasoning, and the frequent impossibility of bringing the matter in dispute to a decision by the crucial method of experiment.

The Experimental Study of Auricular Fibrillation.

The history of the development of our knowledge of fibrillation is singularly interesting as affording a striking example of the experimental method having substituted a clear, definite, and easily proved condition for what was previously a most vague, indefinite, and even intangible conception. But the history of the discovery of fibrillation is even more interesting and important from another point of view, and teaches a lesson of supreme importance to those who are always insistent on investigation being directed to some immediate practical aim. Fibrillation was discovered by a physiologist who was attempting to ascertain where the beat of the heart had its origin—in other words, whether the heart contained a so-called centre from which the beat arose. In the course of his inquiries he found that on stabbing the heart with a fine needle a condition of what we now call "fibrillation" ensued. Sometimes this followed a single puncture, sometimes many were required. Later it was found that faradisation of the exposed heart with a current of moderate intensity produced the same result. Sometimes the condition of fibrillation was transitory, in other cases it was permanent; the heart did not recover, and death ensued.

It is unnecessary to-day to go into all the details of the many subsequent investigations on this interesting subject; all that it is necessary to point out here to-day is that this condition of fibrillation was a discovery of experiment produced by such crude and simple methods as repeatedly stabbing or faradising the exposed heart. I can well remember that it was a common method, some 40 years ago, to kill an animal at the end of a physiological experiment by faradising its heart, and so producing heart delirium or fibrillation. No one who saw fibrillation would have suspected that it was a common condition in human heart disease, and that almost every hospital ward had cases suffering from it, either temporarily or even for long periods of time. It might, indeed, have been argued very plausibly that it was inconceivable that such crude experiments could have any possible use or bearing on vital processes, and still less on human heart disease; and yet we see that the exact opposite is the case, and that, crude as the experiment was and remote as was the connexion between the normal dog's heart and human mitral stenosis, and although the mind of the investigator had no thought of heart disease in his inquiry, nevertheless this crude and apparently idle experiment was of the utmost significance for the intelligent understanding of one of the commonest forms of heart disease.

THE RECIPROCAL RELATIONS OF PHYSIOLOGY AND PATHOLOGY.

Another lesson may also be learned from consideration of these results, and that is the reciprocal influence of physiology on pathology, and of pathology on physiology, and how extremely artificial the boundary is between these two departments of knowledge, and how, if we are to have an adequate conception of even relatively simple vital processes, it is necessary to study them with the broadest possible outlook. A pure and rigid physiologist, studying only the normal activity of the heart, would scarcely be prepared to admit that the circulation, in a highly organised mammal, could be maintained when the rhythmical activity of the heart was so disorganised that auricular fibrillation was present. Nevertheless, clinical medicine proves that, even in man, such is the case. Surely such facts as these are of the utmost value, not only in our immediate daily work and in our attempts to treat disease and relieve suffering, but still more so in our appreciation of the nature, the complexity and, more especially, the adaptability of the activities of living matter. Marvellous as are the various methods by which a circulation sufficient for the needs of the normal animal is effected—and this is well shown by the study of comparative anatomy and comparative physiology—the marvels of the relative efficiency of the disordered circulations of heart disease are not any less. Certainly the study of these conditions not only widens our conceptions, but is also a useful incentive to our therapeutic efforts when a more limited and narrow belief might lead us to be less hopeful as to the possibility of procuring relief or cure in these conditions.

The Work of Gaskell and Romanes.

The history of the study of the phenomena of fibrillation has been cited as an illustration of the very close relationship that exists between experimental science and the daily work of the physician, especially if we wish to found our art on a secure basis of science and if we desire to eschew empiricism where this is possible. The same illustration may be found equally well in the history of the development of our knowledge as to the nature of the normal beat of the heart and of its disordered action in disease. Here also we see the extraordinarily close connexion between pure physiology on the one hand and the interpretation of the clinical symptoms of heart disease on the other. It may seem at first strange to assert that our present conceptions of the fundamental facts in the pathology of heart disease owe their origin to researches conducted by a physiologist on the nature of the muscular contractions in the umbrella of the jelly-fish, but it is really an unexaggerated and plain statement of fact. Romanes, in the 'seventies, carried out a series of very beautiful but very simple experiments on the nature of the

rhythmical contractions of the umbrella of jelly-fish, being especially interested in the question whether the wave of contraction was transmitted via the nerve plexus—that intermingles with the sheet of muscle in these organisms—or whether it was of purely muscular origin. He had but little apparatus beyond a pair of scissors, and, for some purposes, a simple recording lever and a smoked surface. Romanes, in the course of his work, discovered the fundamental fact that what is known as a block was a phenomenon dependent purely upon muscular changes, and due sometimes to a mere narrowing by section of the width of the muscular bridge connecting the two portions of a contracting muscular sheet. In other words, a block might be produced by local alterations in the conducting properties of the muscle itself. Further, he showed that delay in conduction could also be effected by such alterations in the muscular bridge produced by narrowing of the connexion, and that delay in transmission of a muscular wave from one part to another was not in itself any evidence of the intervention of the nervous elements. The importance to us, as physicians, of Romanes's work was that it was the origin of the slightly later and epoch-making work of Gaskell on the nature of cardiac action. We owe to Gaskell a very large part of our modern conceptions of the physiology and pathology of the heart muscle, and Gaskell's work, like that of Romanes, is beautiful in the extreme simplicity of the bulk of his experimental work. He developed and amplified in the heart of fishes, of amphibia, and of reptiles, and especially in the heart of the tortoise, the fundamental experiments of Romanes; and, like Romanes, some of his most striking results were obtained by the use of experiment, with little more apparatus than a pair of sharp scissors. His fundamental experiment of producing a block by section of the muscle of the auricle, so as to leave only a narrow bridge connecting the sinus portion of the auricle with the ventricular portion, was performed on the heart of a skate on the deck of a yacht whilst cruising off the west coast of Scotland, not far from where Romanes worked in his seaside laboratory on his jelly-fish.

Gaskell was the protagonist of the doctrine of looking upon the heart as a muscle and of unravelling the properties of cardiac muscle, and of correlating them with those of other muscular tissues, voluntary and involuntary. Further, he correlated structure and function, as shown by the different physiological properties of auricular and ventricular muscle associated with their different structure, and he emphasised, as also did Roy, the great part played by the auricle in the physiology of the heart-beat and its intimate association with the nervous system.

Another of Gaskell's great conceptions was that of the independent rhythm of the separate cavities of the heart and the way in which, under certain abnormal conditions, the prepotency of the sinus end of the heart might be interfered with, and an independent rhythm initiated in some other portion of the heart, as, for example, the ventricles. We owe to him the conception of the heart as consisting of a number of muscular cavities each with an independent rhythm, but the whole dominated by a prepotency at the sinus end. Nevertheless, under certain conditions this might be disturbed by the manifestation of the independent rhythm of some other portion of the heart, more especially the ventricle.

Gaskell's work on the nervous system was of such a striking character, and led to such far-reaching conclusions, that sometimes we are apt to forget that his earlier work on cardiac muscle was certainly of equal importance, and has had a very great influence on the progress of modern pathological knowledge, especially by clarifying our ideas as to the nature and mode of origin of the cardiac rhythm. We also owe to him and to Roy the conception that the main function of the auricle is to act as a regulator of cardiac activity. As has already been pointed out, all these fundamental facts were discovered by experiment, with very simple apparatus. But in another branch of physiology to which medicine is also greatly indebted the experimental methods necessary in order to elucidate the phenomena were of a more complex character. Forty years ago electrophysiology was looked upon by many as a recondite branch of investigation which might perhaps be of interest, but which could not possibly be of any practical use. Physiologists, like Burdon Sanderson, were engaged in the investigation of the electrical phenomena associated with the activity of vital processes, simply and solely because it was the most delicate physical method available for the investigation of such phenomena. It is a striking comment on such views as these to reflect that the study of the electrocardiogram in the human subject and in animals was the actual means by which the condition of fibrillation was verified to exist in the human subject. Furthermore, the electrocardiogram gives us the most definite and accurate knowledge of the real state of the cardiac muscle, as shown by the nature of its activity.

The Electrocardiograph.

One of the most striking everyday illustrations of this may perhaps be quoted. Every practitioner is aware that in mitral stenosis under some conditions the presystolic murmur is absent and in others it is present. I know of no more striking demonstration than to be able to show, by means of the electrocardiogram, that in the one case the auricle is contracting rhythmically and in the other it is not. The electrocardiogram removes all doubts and difficulties as to the interpretation of this phenomenon, and gives an element of certainty that is not obtainable by any other method. It has thus led to a precision in the interpretation of some clinical phenomena that leaves little to be desired. On the other hand, it requires an elaborate installation and a considerable amount of technical and special knowledge, and thus is ill-adapted for ordinary routine observation.

Although we owe to the electrocardiogram the complete demonstration of the existence of fibrillation in the human heart, we can recognise the presence of fibrillation by other and simpler methods. It is a common thing in the history of science that the interpretation of facts may require difficult and elaborate experimentation, whilst their recognition can be effected by the use of simpler methods. The electrocardiogram may be useful for both purposes, but it is perhaps more especially valuable as an instrument of research when attempts are being made to ascertain the fundamental causes of certain clinical phenomena.

The Work of Ringer.

Another striking illustration of the profound influence of a simple experimental method of inquiry in advancing our knowledge of the nature of the heart-beat, and indirectly of all vital activities, is afforded by Ringer's work on the effect of minute quantities of calcium, potassium, &c., on the heart. His discovery that the activity of a living tissue was dependent upon the presence of calcium was a great discovery, and one the full effects of which are only now beginning to be realised. He, further, had the very remarkable foresight to anticipate in some respects the modern doctrine of ions. Ringer's work is perhaps especially noteworthy inasmuch as it was the work of a man trained as a clinical physician, who did not embark on experimental inquiries until he had reached middle life, and then devoted himself to the investigation of what might be regarded as abstract problems of pure physiology. These observations, like those of Gaskell, were what may be called fundamental, inasmuch as they altered our conceptions of the nature of vital processes, in that they replaced what was vague and indefinite by concrete physical and chemical facts. These observers certainly fulfilled Harvey's exhortation to the letter, by

searching and studying out the secrets of Nature by way of experiment.

I have attempted, in this oration, to show that the pursuit of knowledge by Harvey's experimental method is not to be regarded only as a means for the acquisition of results of great value in our daily work, but also that it is of supreme importance in laying the foundations of our conceptions as to the nature of the processes we see at work in disease, and that, thanks largely to it, we may claim that medicine has a scientific status as a branch of natural knowledge.

Hence in medicine, as in biology generally, it is true that like causes produce like results, and the successful investigator must realise the profound truth of the lines:—

> And Nature the old nurse took
> The child upon her knee.
> Saying, 'Here is a story book
> Thy Father has written for thee.
>
> Come wander with me,' she said,
> 'Into regions yet untrod,
> And read what is still unread
> In the manuscripts of God.'
>
> And whenever the way seemed long,
> Or his heart began to fail,
> She would sing a more wonderful song,
> Or tell a more marvellous tale.

An Address
ON
WORKMAN'S COMPENSATION AND THE SURGEON.

Presidential Address delivered at the Section of Surgery, Royal Society of Medicine on Oct. 20th, 1926,

BY V. WARREN LOW, C.B., M.D. LOND., F.R.C.S. ENG.,

SENIOR SURGEON TO ST. MARY'S HOSPITAL, LONDON; CONSULTING SURGEON TO THE LONDON, MIDLAND, AND SCOTTISH RAILWAY.

As far back as 1846, the year in which Lord Campbell's Fatal Accidents Act was passed (which gives the right of action for compensation to the families of persons who are killed by the negligence of others), a Select Committee on Railway Labourers, shocked by the casualties among the 200,000 navvies engaged in the work of railway construction, reported in favour of making railway companies pay compensation for accidents. The words were:—

"By making the companies liable instead, your Committee contemplates fixing that part with the liability who has the greatest power to prevent the injury and the greatest means to repair it."

That was in 1846, and it was not until 1880, and then only tentatively, that steps were taken by our legislators to give effect to this very salutary suggestion.

I have heard it suggested, even in the precincts of St. Stephens, that surgeons are apt to err on the side of caution and reaction, particularly with regard to certain manipulative methods, but I think I can claim that the surgical world moves more rapidly than this.

In 1880 was passed the Employers Liability Act. Before this date the only legal remedy open to the workman who had suffered bodily injury, when following his employment, was a common law action against his employer. Such an action is only available when it can be shown that the personal injury complained of arose from the employer's personal negligence, or because he knowingly employed an incompetent servant. Even then the plaintiff may have to meet the defence of *volenti non fit injuria*, a doctrine which deprives a servant of the right to recover damages for personal injury, if, appreciating the risk he is running, he agrees expressly or by implication to accept that risk. Furthermore, a counter charge of "contributory negligence"—i.e., want of ordinary care on his own part—may, if substantiated, deprive a workman of success in the action.

Even if the plaintiff successfully overcomes these two methods of defence there remains the even more serious obstacle of the doctrine of "common employment," which excludes liability when the injury is caused to the workman by reason of the negligence of a fellow workman in the employment of the same master. That the injured workman was bound to obey the orders of the fellow servant, whose negligence caused the injury, makes no difference.

The Employers Liability Act imposed on the master liability for accidents, causing injury or death, brought about by defects in works, plant, or machinery, due to the master's negligence, and for similar accidents caused by the negligence of fellow servants entrusted by the employers with duties of superintendence. The Act did not deprive the employer of the defences of *volenti non fit injuria* or contributory negligence. It was also legal for the workman to contract out of the Act.

The Workmen's Compensation Act of 1897 introduced into English law an entirely new principle. It initiated the idea that a workman injured in his employment should be entitled to compensation, irrespective of any question of negligence. This new principle thus introduced was stated as follows in the first section of the 1897 Act:—

"If, in any employment to which this Act applies, personal injury by accident arising out of and in the course of the employment is caused to a workman his employers shall . . . be liable to pay compensation."

Only certain employments were mentioned, and these were in connexion with what would be described as the more dangerous trades. In 1900 the Workmen's Compensation Act was extended to agriculture, and thus imposed upon a class of small employers—viz., the small farmers—the liability to pay compensation. The two principles of the 1897 Act that it should apply only to the more dangerous trades and, generally speaking, impose liability only upon the larger employers, were thus departed from. The Workmen's Compensation Act of 1906 codified and extended the Acts of 1897 and 1900. The 1906 Act extended to all employments with some few specified exceptions and industrial diseases were brought within its scope. The innovation which was perhaps of the greatest interest to our profession was that the county court judge was enabled to summon a medical referee to sit with him as assessor, and it was also made possible for the parties to refer their dispute, as to the extent or cause of the workman's incapacity, to a medical referee. In 1919 a Departmental Committee was appointed to inquire into the working of the present system of compensation to workmen for injuries sustained in the course of employment. This Committee reported in 1920.

It is to this report that I am indebted for my information as to the history of the previous Acts and from which I quote freely. As a result of this report the Act of 1923 was passed. In this additions were made to the weekly compensation payable under the Act. Compensation was made payable on the fourth day of incapacity (the first three days being paid for if the incapacity lasted for four weeks) instead of, as under the old Act, in which compensation was paid only at the end of the first week (this week being paid for if the incapacity lasted a fortnight). The 1923 Act also raised the maximum income for non-manual workers, included in the Act, from £250 to £350 per annum. There were also other alterations in procedure which are not, however, of much interest to us. Finally, in December, 1925, an Act was passed to consolidate the law relating to workmen's compensation. In a large measure this repeals the 1923 Act and entirely repeals the 1906 Act.

The Act of 1925 is practically on the lines of that of 1923, but generally simplifies the procedure. What perhaps is of most interest to us is that an employer can diminish or end the weekly payment to a workman if the certifying medical practitioner gives

a certificate that the workman has wholly or partially recovered, and if after the lapse of a certain specified time no counter certificate by another medical practitioner has been furnished by the workman. In the latter case the parties may go before the medical referee who can decide the case. This power was present in the former Acts, but not so clearly expressed.

THE OBJECTS OF LEGISLATION.

To its earliest advocates employer's liability was rather a means of securing greater protection for the workman's life and limb than of providing compensation for those injured by industrial accidents. The idea was that if accidents could be made costly to the employer he would thereby be induced to take steps to avoid them. Whatever may have been the original intention the plan by which accidents were to be prevented by being made costly was defeated, at any rate for the time being, by the growth of accident insurance. The effect of this was that the liability imposed on the individual employer was no longer seriously felt and the provision of some measure of support for the workman and his dependants was looked upon as the sole proper function of the Employers Liability Act. There are, as you know, the Factory and Workshops Acts and the various Mines Regulations Acts which are intended to provide for the prevention of accidents.

There is, however, no reason why the Workmen's Compensation Act should not also contribute towards improving the measures taken for the prevention of accidents. In America, although Workmen's Compensation legislation was unknown before 1906, considerable advance has been made in this direction, and apparently originated with the insurance companies. "Merit rating" is the means by which workmen's compensation statutes have been made to advance the accident prevention movement in America. It involves recognition of the principle that the employer who takes all reasonable steps to safeguard his employees should pay less for accident insurance than the employer who fails to take such steps. This is assisted by an organised system of inspection, and, in the case of mines, by a safety engineering service, which devotes itself to the improvement of the safety conditions of each mine.

It is interesting to note that very much the same influences are now in America endeavouring to speed up the complete recovery of the injured workman and to lessen the time during which he draws compensation allowance. In 1920, according to the report of the Departmental Committee, the only approach to anything of this kind in this country is that by their system of "special rating" insurance companies, in respect of large risks paying, say, £10,000 a year in wages, reduce rates where the experience of two or three years shows "few accidents, as a result of good management, good plant, and all that." Reduction of premium follows experience alone. There is no systematic inspection; the existence of a safety or welfare committee is not a factor, and no reduction of premium is offered on the ground that safety precautions are taken. It is obviously to the interest of those employers, who are large enough to insure themselves, that the incidence of accidents should be as low as possible, but whether their system of accounts would show whether or not they would merit the reduced rate for "few accidents" were they insured outside I do not know.

That the matter is of some importance to us all can be gathered from the figures given by the departmental report in 1920. The present system, it says, imposes on employers a burden of upwards of £8,000,000 per annum, and the total number of workers within the Act is calculated to be about 15,000,000.

WHAT IS AN ACCIDENT?

To uphold a claim under the Act for personal injury it is necessary to show that the injury was sustained as a result of (1) an accident arising out of and in the course of the employment, or (2) one of the industrial diseases brought specially within the scope of the Act.

The meaning of the term "accident" is now well settled by judicial interpretation. In the earlier cases the Court of Appeal held that the idea of something "fortuitous and unexpected" was involved in the term "accident." The House of Lords, however, have applied a construction which is more favourable to the workman. In the words of Lord McNaghten, "the expression 'accident' is used in the popular and ordinary sense of the word as denoting an unlooked-for mishap or an untoward event which is not expected or designed." At a later period this definition was extended, and it was decided that the mishap or occurrence must be looked at from the workman's standpoint, and that whatever its cause or origin it will be treated as accidental unless designed by the workman himself. This definition has been held to be wide enough to include such cases as heat-stroke, chill developing into inflammation of the kidneys, and the rupture of an advanced intrathoracic aneurysm.

While an "accident" must be due to some particular occurrence at some particular time this condition does not necessarily exclude disease. For example, a workman who had been sorting infected wool contracted anthrax in the eye. "It was found," states the report, "that at a particular time a bacillus from the infected wool had alighted on his eye." (To the legal mind, I believe a bacillus is something like a gnat.) A Lord Chancellor observed—

> "that while it was essential that there should be some particular occurrence happening at some particular time . . . what that particular time was is immaterial so long as it reasonably appears that it was in the course of the employment."

Diseases of gradual onset such as lead poisoning are on a different footing. These cases are not "accidents," because they are not traceable to any particular occurrence in the course of employment.

The workings of the legal mind on medical matters are to me always a mine of interest. One would have thought that the mind which could have envisaged a bacillus alighting on the eye would have made little difficulty of the inclusion of a particle of lead in a nerve-cell. Fortunately both these conditions—anthrax and lead poisoning—are scheduled under industrial diseases, and there is no necessity to invoke the term "accident."

THE BASES OF A CLAIM FOR COMPENSATION.

To succeed in a claim for compensation it must be established that the workman not only suffered "personal injury by accident," but also that it was an accident arising "out of and in the course of his employment." These words were the foundation of the 1897 Act, and have been reproduced unaltered in every Act since. The matter was thoroughly discussed in the Departmental Committee, and it was finally decided that it was desirable that the phrase, which had been the subject of so much judicial consideration, that its meaning was well settled, should be retained in that same form. The view was expressed that—

> "as there must be some limiting words, and as these words have received judicial construction over and over again, it would be wiser that they should be retained rather than that any fresh form of words should be substituted."

It was also pointed out that other States, which have in recent years adopted workmen's compensation legislation, have imported the classic British phrase. In the United States, for instance, only four States use alone the phrase "in the course of the employment," while in all the others an accident must arise "out of" as well as "in the course of the employment." In France the expression is "Les accidents survenus par le fait du travail ou à l'occasion du travail."

I think it may be stated as a fact that, owing now to the number of cases that have been decided under those Acts, and to the manner in which the law has been codified and rendered more simple, the legal position of any plaintiff, except in very rare cases, is clear provided the facts can be proved.

With very few exceptions the facts in dispute are in connexion only with the medical aspects of the case, and it is here that the whole matter bristles with difficulty and is often befogged by doubt. It must also be remembered that there is no court of appeal on the facts of the case. Appeal is, I understand, allowed only on points of law, and not on the much more controversial matters involved in the medical evidence. To the legal mind, untrained in medicine, it must sometimes appear that the opposing doctors, apparently in all good faith, are expressing views on the same circumstances which are poles apart. Often the difference is more apparent than real, and depends more on different methods of expression or on inequalities of emphasis than on any real divergence of opinion on what are the essentials of the case.

But quite apart from this there is, in this class of case, plenty of room for an honest difference of opinion with regard to the essential points at issue. This difficulty is not lessened when the plaintiff, either from ignorance or from motives less naive, exaggerates or imagines the symptoms which are responsible for his incapacity. Yet it is on controversial material like this that a tribunal, untrained in medicine, may have to come to a decision. I am referring to those cases where a county court judge sits without a medical referee. From this decision on the medical evidence there is no appeal, as the courts above assume the findings of the county court judge as the facts of the case.

DIFFICULTIES IN CONNEXION WITH CLAIMS FOR COMPENSATION.

The difficulties in connexion with these cases come under two heads:—

1. The question of entitlement. Is the workmen's incapacity the result of an accident or has it been aggravated by an accident or is it due to some other cause? This is often largely a matter of diagnosis.

In actual fact I imagine that this difficulty arises in only a comparatively small proportion of cases, administered under the Act, as in the majority of cases the accident and the result are obvious. They form, however, a large proportion of the cases which are referred for opinion to surgeons.

2. The question of the duration of incapacity.

This is a matter of a vast difference of opinion between employers and employed. It is often a matter of very considerable difficulty for a conscientious surgeon to decide at what period the injured workman ought to be forced, under the penalty of losing his weekly compensation, to resume his normal employment. It is in my experience comparatively rare to come across cases to which the harsh term of malingering can be applied, but one sees numbers of cases in which a few weeks of inactivity appear to promote an "inertia" and "a work-shyness" which are exceedingly difficult to overcome, and to which the certifying doctor often shrinks, for some months, from applying the drastic remedy of refusing a certificate. It would be impossible to compute the number of working days that are thus lost to the community, or the thousands of pounds thus paid in unnecessary compensation and, what I think is of even greater importance, the damage done to the workman's own morale.

I am not suggesting that this is peculiar to cases which come under the Workmen's Compensation Acts. There is always a startling contrast in the time taken to resume the normal occupation, after accidents incurred at football, hunting, &c., where the responsibility of the incapacity rests with the patient, and the time taken to recover from accidents for which the responsibility rests on others. But it is the enormous number of workmen's compensation cases that renders the matter of so much importance. With a little more encouragement on the part of our profession and, shall I say, some fraternal persuasion, I believe this time could be materially diminished with a considerable effect on the cost of production in our various industries.

SPECIAL DIFFICULTIES IN NERVOUS CASES.

Perhaps of all the pitfalls that beset the surgeon in deciding the question of entitlement, those which arise in connexion with diseases of the nervous system are the most difficult to avoid. Diseases of the nervous system are often insidious in onset, and if the first obvious subjective evidence of an insidious disease, possibly of some standing, should happen to coincide with a slight injury, it would be contrary to the ordinary tendency of human reasoning if the injury and the disease were not regarded in the relationship of cause and effect. The following are a few brief examples of this.

A. B., aged 39, an engine-driver, whose temper for some time had been noticed to be deteriorating, on Oct. 20th, 1924, after a few words with his foreman, slipped and fell on his head while getting off the foot-plate of his engine. He picked himself up and smoked a cigarette, and then noticed that some blood was dripping from a small scalp wound at the back of his head. He attempted to stop the bleeding with a cloth, and lost consciousness. I suggest that he fainted. He was taken to a hospital and regarded as a case of concussion. He became violent and, finally, at the end of three days, left the hospital against advice. He was now labelled cerebral irritation following concussion. He was at home for a fortnight, but behaved so peculiarly that he was taken to the infirmary and remained there until Nov. 20th. On admission to the infirmary he was found to be emotional with hesitating speech, and he suffered from headaches. He also had distinct delusions, and once escaped from the hospital. He was again regarded as a case of cerebral irritation following on the injury to the head.

When seen on Dec. 18th the man stated that he was in perfect health and demanded to return to work. He was tremulous, with indistinct speech, which he attributed to the loss of six teeth in the infirmary. His deep reflexes were increased. His pupils were unequal and inactive to light. There was a small scar, which was not tender, on the right side of his occipital region. At this period it was not difficult to realise that this was a case of general paralysis, and this was afterwards confirmed by a neurologist who, however, also was of opinion that the condition had been accelerated or aggravated by the injury to the head.

The subsequent history of this man is of interest.

In February, 1925, he was admitted into a mental hospital under certificate with marked mental and physical signs of general paralysis of the insane. His blood and cerebro-spinal reactions were positive. While in this hospital he was treated with injections of malarial organisms; he was allowed to leave in July, as his mental condition had become normal. He was seen again in March, 1926, when he appeared to be perfectly rational, but his pupils did not react to light and there was still a marked activity of his deep reflexes. This man was seen by a mental expert as late as August of this year, when his mental condition was stated to be satisfactory, but there was still tremor of his hands and of his tongue on protrusion. His pupils did not react to light and his knee-jerks were brisk. The man is now back at work, and is at present driving a small engine in a yard, but he is naturally not allowed on "the road."

Tabes dorsalis is the cause of many difficulties.

In June, 1919, C. D., a man aged 45, was loading up some postbags into a van, when the barrow, on which he was standing, moved, and he twisted his body and fell against the side of the barrow. This happened just as he was coming off duty, and he had finished his work. He did not return to duty the next day, and it was stated that he had strained his back and his abdominal muscles. He returned to work for short intervals during the autumn of that year, but was more often absent, and was always furnished with certificates of "injury to the back muscles, &c." In March, 1920, his employers refused to continue his compensation payment, and the man threatened an action. This did not materialise until 1924. When he was examined for the purposes of the action he stated that he had "lost his strength," and that "his legs gave way," and that he had "pain across his back." His pupils reacted very sluggishly to light, and his knee-jerks could not be obtained. It also transpired that he had been under treatment at a London hospital for four years, and that he was gradually improving. The case came into court and was referred to the medical referee, who decided that it was one of tabes dorsalis, and had no reference to injury.

In this instance the man was undoubtedly as much deceived as were his doctors in the early stages of his illness. (Probably the real villains of the piece were the solicitors, who persisted in the claim in spite of the fact that they produced no medical evidence.)

[A somewhat similar case was here narrated in detail where a syphilitic affection of the central nervous system had first manifested itself three days after a trivial accident.]

A strange case was that of E. F., a vanguard, aged 16, who was seen on Oct. 6th, 1924, and who was then evidently recovering from a right hemiplegia and aphasia. His own statement was that in the previous April (six months before), while lifting an empty petrol tin off a lorry, he slipped and stumbled against the side of the lorry, hurting his right arm and leg. He said nothing about this at the time, but on the next day he went sick and on May 2nd went to the infirmary, where he gradually became paralysed down the right side and also lost the power of speech.

What E. F. forgot to mention was that, previous to the alleged accident, in March he had been admitted to the same infirmary with an obscure febrile disease and headache. He gradually improved, and was discharged on April 14th. He was readmitted on May 2nd, and certainly then told the doctor of the infirmary that he had scraped his knee against the "tailboard of a wagon," but, unfortunately, on this occasion, in order to account for the fact that an alleged abrasion had healed he had had to antedate his accident 10 days. As a matter of actual fact, there was never any evidence of an injury except the boy's own statement, and he had never made any mention of one until he reached the infirmary.

While he was in the infirmary on the second occasion there was a gradually increasing paresis of the right arm and leg, with aphasia, and this gradually cleared up. The Wassermann test gave a negative reaction.

It was not until he had practically recovered that the diagnosis of encephalitis lethargica was made, and I should imagine that was probably the correct one. It would, however, have been an awkward case to have dealt with if the boy had selected an injury, say, to the left side of the head instead of injuring his right arm and leg.

[Another case, which might, perhaps, be explained as one of undiagnosed encephalitis lethargica, was described. The earliest symptom was noted just after a very slight injury, and loss of consciousness, aphasia, and paralysis followed. The patient ultimately recovered.]

A trivial injury is often held to be responsible for symptoms which are afterwards found to be due to the insidious onset of a cerebral tumour. Of this the following case is an example:—

G. H., aged 34, on March 22nd, 1922, while pulling a crate of furniture down from his van fell and struck the ground with his left temple. The crate also fell on him, and caused him to cut his lip. This happened immediately before the dinner hour, and after his meal he resumed his work. Later in the day he reported the accident, but did not go sick, though he went to his doctor and got some medicine. He occasionally felt queer, but it was not until September (seven months afterwards) that he complained of severe and continual headache. He still continued to do his work for over a year, and it was not until December, 1923, when he was attending a hospital for a trivial injury to his wrist, that he came under the observation of a neurologist (one year nine months after).

He then went off duty, and when examined in February, 1924, it was found that he had partial paralysis of the left third, fifth, sixth, seventh, and eighth nerves, pain over the left side of the head, and double vision. There were no symptoms of increased intracranial tension and no optic neuritis. His reflexes were normal, and there was no paralysis of the limbs. Examinations of the blood and cerebro-spinal fluid, and an X ray photograph of the skull revealed nothing abnormal. A diagnosis of a tumour at the base of the brain was made and, as the physician and surgeon in charge of the case were unable to exclude the possibility of injury as a cause, liability was admitted.

In October, 1924, at another hospital, it was thought that he might have an eighth nerve tumour, and his posterior fossa was explored but nothing abnormal was found. The man is, I am glad to say, still alive (Sept. 21st), though he still presents the picture of a tumour at the base of the skull.

Whatever name we may give to it, we have to admit that a certain group of symptoms may follow the *commotio cerebri* which results from the shock of any serious injury, particularly a head injury. Sir Frederick Mott called the condition "traumatic psychasthenia due to a functional disturbance of the brain as an organ of mind." I need scarcely describe the symptoms of a typical case. But it is not over the typical cases that there is any difficulty.

The liability for a typical neurasthenia or psychasthenia following, with no loss of continuity, a straightforward and definite injury has to be admitted, and the only question is to get the man well and back to his work as soon as possible, both for his own and for his employer's sake.

Unfortunately the term neurasthenia has gradually become to be applied to indefinite conditions, often following very trivial and very vague accidents, and these cases present every kind of difficulty.

THE BORDER TERRITORY OF MALINGERING.

In a few cases the distinction between a pathological condition and frank malingering becomes extremely fine. In the majority there appears to be a condition of mental and bodily "inertia" which appears to rob the patient not only of all ambition but of what many of us would regard as ordinary self-respect. Such patients are content to live idle lives, drawing somewhat less than their ordinary pay, rather than make the mental effort necessary to resume their ordinary occupations.

[The point was illustrated by a case of slight injury to a man of poor physique, where careful and repeated examination revealed no organic cause for the symptoms of which he complained. His employers ultimately decided to cease paying his compensation, and he brought the case into court. He produced medical evidence that he was suffering from traumatic neurasthenia, the result of the accident, and a sympathetic county court judge, who quite ignored his medical referee, practically settled the case in his favour by forcing a compromise on the employers.]

L. M., aged 21, who was seen in April, 1925, stated that he was hit on the right side of the lower jaw by the handle of a barrow on May 16th, 1924, nearly a year before. He said that he remembered nothing of the accident, but that he was assisted to an ambulance station and then went to a hospital, but was not detained. He remained away from work until August, when he was given light work, on a certificate from his doctor that he was suffering from "traumatic neurasthenia." L. M. was a sturdy-looking man, 5 ft. 4 in. in height and 9 st. 10 lb. in weight. He thought that he had gained slightly in weight since the accident. He complained that occasionally he had "a feeling" the nature of which he was unable to explain, which at times prevented him from stepping on to a train to go to his work. It did not occur to him to walk there, a distance of about two miles. He also suffered from loss of memory, but could not give many examples of this, except occasional inability to express himself or to give an account of his doings. He did not think that he had ever forgotten to have a meal. His father, who was 48 years of age, had not worked for some time owing to "chest trouble." The mother did not go out to work, and the family was in receipt of Poor-law relief.

Beyond a slight tremor of his hands, L. M. presented nothing abnormal. The jaw itself, the original seat of injury, had never given rise to any trouble; he had suffered an injury to the jaw of a severity no greater than is constantly sustained on any football field and which does not, as a rule, prevent the player from finishing the game after a short rest. But for the intervention of a sympathetic ambulance man I doubt whether it would have occurred to L. M. to have gone to a hospital. The hospital authorities evidently thought little of his injuries, and allowed him to go home.

Circumstances in the shape of a poor home and the Workmen's Compensation Act led L. M., a youth of low mentality and a lazy nature, into a life of semi-invalidism. One could not say truthfully that he was malingering. There was the slight tremor of the hands, and his pulse-rate was raised to 100 throughout an interview of over half an hour. He was, however, undoubtedly making the most of a very slight disability. With a minimum of resolution on his part he could have undertaken any work for which he was mentally and physically fitted. He had unfortunately been labelled with the term neurasthenia, the nature of which had apparently been indicated to him, and he was content to remain neurasthenic so long as the stimulus of want did not force him to do a decent day's work. It is cases like this which do not present the pleasantest aspects of the Workmen's Compensation Act.

THE ASSOCIATION OF ACCIDENT WITH TUBERCULOSIS.

But it is not only these obscure nervous cases which present difficulties with regard to entitlement. It must be within the experience of all of us that a large proportion of cases of surgical tuberculosis, particularly in the case of joints and the spine, are by the public supposed to originate with an injury. In fact, this is not confined to surgical cases, and I remember many years ago, when I was a resident at a children's hospital, how all the cases of tuberculous meningitis appeared to have arisen as the result of injuries. Investigation showed in most cases that the injury was an after-thought, and often the only evidence of it was the fact that the child had something wrong with its head. So deeply rooted in the public mind is the belief that disease must be caused by something outside the patient, and the easiest cause to invoke is usually an injury.

N. O., aged 34, a weakly-looking man, was seen on Dec. 29th, 1923. He stated that on Nov. 30th, while standing "astride a dyke," and shovelling out soil, he struck his left testicle with the handle of his shovel. He continued his work for the remainder of the day, some six or seven hours. Since then the organ has remained tender and swollen. The epididymis was enlarged and indurated, and the vas was nodular. The testicle itself did not appear to be affected. The case was obviously one of tuberculous epididymitis, and it was not considered that the accident a month before had much to do with its causation. The man, however, was advised otherwise, and was taken into a hospital largely, if not altogether, supported by trades-union funds. The case was there regarded as a hæmatoma of the testicle, as the result of injury, until it was removed in May, when it presented all the features of an advanced case of tuberculosis of the testicle. The man brought an action against his employers in November, 1924, which was resisted on the ground that the accident, which was of a trivial nature, had merely called the man's attention to what was already present. The judge, however, sitting with a medical assessor, took the view that the accident of Nov. 30th had aggravated the condition, which may have already been present, and the man obtained his compensation. I have since learnt that he has undergone another slight strain, and that a similar operation has had to be performed on the right side.

The question of the relation of injury to tuberculous epididymitis is interesting. I have never myself seen tubercle follow a gross injury to the testicle, such an injury, for instance, as produces a hæmatocele. In all the cases I have seen of tuberculous testicle, of which injury has been alleged to be the cause, the injury has been always either very slight, or of a nature so vague and shadowy as to raise doubts as to its existence.

Two of my patients were convinced that the tuberculous epididymitis for which they were admitted to hospital was caused by bracing up their trousers too tightly, and I was never able to persuade one of them that this probably had had nothing to do with it and had merely demonstrated to him that he had a tender organ. I should like to hear the experiences of other surgeons on this point.

ACCIDENTS IN THE SYPHILITIC.

Somewhat similar to this, though the disease in question was different, was the case of P. Q., a travelling ticket collector, who was seen in May, 1925. He gave a history of a parcel falling on his shoulder and then hitting his right testicle in May, 1919. He continued to work for a week, although the organ was swollen. He then went off duty until August, and finally the testicle was in October, 1919, diagnosed at a hospital in London as malignant and removed. He resumed work in December, and continued to do so until November, 1923, when he fell between a moving train and the platform and fractured some ribs. He had not worked since then. In the meanwhile his liver had enlarged.

The case was regarded as one of malignant disease of the liver, secondary to a malignant testicle. The question for decision was whether an injury could be held responsible for malignant disease of the testicle. Fortunately this very difficult question did not have to be answered.

Further investigation revealed the fact that the testicle removed in 1919 proved, after removal, to be a gumma. P. Q.'s blood gave a positive Wassermann reaction, and he was also found to have a syphilitic ulceration of his larynx. Under appropriate treatment he improved rapidly, and was glad to receive compensation for the enlargement of his liver, which was rightly held to have been aggravated by the injury in 1923 to his ribs and chest. He is still alive and in comparatively good health.

It is quite impossible to lay down any general rule about the relationship of tuberculous joints and injury. Each case must be decided on its merits, but where there is a definite, well-proved injury to the joint in question, then I think it is impossible to resist the contention that the condition of the joint, if not caused by, may have been aggravated by the injury.

JOINT INJURIES AND OSTEOARTHRITIS.

But if there is difficulty about tuberculous joints that difficulty is increased tenfold when we come to cases of osteoarthritis. The condition is extremely common amongst manual workers above a certain age, a fact which may, perhaps, suggest that repeated and slight injuries to the joints may play a part in the causation. It is also a fact that amongst men of this class one sees an enormous number of septic mouths. The disease is insidious in its origin, and consequently the first intimation a man may have that there is anything wrong with his joint is on the occasion of a trivial injury to it. It would be asking too much of human nature if he did not attribute to the injury any subsequent disability of the joint.

Not an uncommon example is that of an elderly workman who has continued to do his routine work without it being noticed either by himself or by others how stiff and awkward he was becoming. Some trivial accident lays him up and once having got out of his stride he finds himself unable to resume work. The following case illustrates this point:—

R. S., seen on June 11th of this year; 65 years of age and 47 years in one employment. On March 12th a bundle of iron pipes which he was carrying fell on his insteps, chiefly on his right. He left his work and walked some distance home. By his doctor's advice he remained in bed for two or three weeks. Since then he has been getting about, but always in pain. He now has osteoarthritis of both knee-joints, sufficiently advanced to reduce him to the condition of a cripple. Nothing could be found wrong with his feet, although he asserted that he was suffering "agony" in both of them. It was almost pathetic to watch him attempting to locate in his feet the pain which he undoubtedly suffered in his knees. The slightest passive movement of the latter was painful, while his ankles could be moved with impunity. His attempts to reverse these facts were almost heroic. It was quite obvious that a weight falling on the insteps in March could not produce a crippling deformity of the knees by June. The man was, in my opinion, perfectly straightforward, he was genuinely puzzled, and could sum up the situation only by repeating "that he was not like it before the accident." Naturally, as it was on his feet that the weight dropped, there, he reasoned, should be the pain. It is my belief that already in March he had advanced osteoarthritis of both knee-joints. He was, however, able to carry on, perhaps slowly and stiffly. The accident threw him out of his stride, and was, therefore, an aggravation of his condition.

The following case illustrates the difficulties that a very cunning or a stupid man may introduce into what should have been a straightforward case:—

T. U., a carriage cleaner, aged 63, was seen in July, 1923. He stated that in August, 1919 (four years previously), while cleaning a coach he fell into a pit 4 ft. deep and hurt his left arm and right knee. That he was laid up for eight weeks until Oct. 18th, and was paid compensation for that period. That he resumed work until Dec. 29th, 1919, when he went sick with "influenza," and from that period, December, 1919, he had not worked again. While he was laid up with "influenza" his right knee and then his left became swollen and painful, and had since remained so.

When seen in 1923 there was marked deformity of both knees, the joints were distended with fluid, and the bony surfaces, forming the joint, were distorted by large masses of new bone formation. There was also marked lateral mobility. Both joints were comparatively painless and presented a typical picture of the joints described by Charcot. Neither then nor at any time could any evidence of disease of the central nervous system be detected, and it was ascertained that a Wassermann test, made at the hospital he was attending in 1922, had proved negative. By a coincidence, I had seen this man at the examination hall some months previously, when the condition of his joints and the

complete absence of any evidence of disease of his central nervous system had aroused comment.

At first sight the case seemed to be straightforward from a compensation point of view. Whatever one may have thought of the nature of the arthritis, there seemed to have been more or less direct continuity from the time of the accident until the commencement of the knee condition, and it was advised that liability should be admitted. What, however, T. U. had omitted to mention was that after resuming work in October, 1919, he worked for 14 months until December, 1920, before going sick with influenza. The certificates given by his doctor in 1921 were for influenza until February, when rheumatism as well as influenza was mentioned, and finally arthritis in March. The case, therefore, resolved itself into that of a man who had an injury, chiefly to his shoulder, in August, 1919. There was then no mention of his knee. He resumed work in October, 1919, and continued to do his ordinary full work until Dec. 29th, 1920 (14 months), when he went sick with a febrile disease. While he was laid up during February and March, 1921, an obscure condition of his knee-joints developed, resembling an arthropathy. There was, therefore, a period of 18 months between the date of the accident and the first evidence, beyond T. U.'s uncorroborated statement, of any disease of the knee-joint.

In spite of this the case was taken up by the man's trade-union and brought into court, when T. U. finally had to admit that in his previous statements he had omitted a year. The case was decided in favour of the employer. The union, however, produced medical evidence that the man's condition was due to the injury in August, 1919.

DIFFICULTIES IN CONNEXION WITH SPRAINS AND FRACTURES.

The expressions "strained," "ruptured," and "contused muscles" are constantly seen on certificates given in connexion with accident cases, and it is wonderful for how long a time a strained or partially ruptured muscle may continue to give trouble, particularly when it is in the back. The following case is fairly illustrative of this class of injury.

V. W., aged 41, while working in a railway cutting in September, 1920, fell or rolled down a bank about 10–12 ft. high and hurt his back. He was taken home on an ambulance and seen by a doctor who said, according to V. W., that he had "twisted or sprained his vertebræ." He was laid up for eight weeks (six of which were in bed). He then resumed light work, but could not use a shovel or wheel a barrow. He was appointed as look-out man, and merely had to warn the gang of an approaching train.

In May, 1923, he was admitted into a London hospital, and some tenderness and rigidity of his back muscles was noted. These muscles were twice stretched under an anæsthetic. According to V. W. and his solicitor, this operation was for the purpose of replacing a displaced vertebra. He was discharged from the hospital in June as cured. He had never, however, returned to work, even to light work again. When he was seen in February, 1924 (three and a half years after the accident), he was a healthy-looking muscular man. He stated that his back began to ache in the afternoon, and became weak towards night. He was unable to lift anything. There was no tenderness nor rigidity of the back muscles, and the movements of the back were perfect. He could do exercises that would be the envy of the majority of men over 40. He had practised these exercises since leaving the hospital, and had evidently done so with enthusiasm. A thorough examination revealed no evidence of ill-health.

V. W. very possibly ruptured some fibres of his back muscles at the time of his accident in 1920. With a little determination on his part, aided possibly by some forced movements of his back, he should have been able to return to work in a few weeks. He, however, nursed his back and refused to use it. Consequently, two and a half years afterwards, a surgeon had to do under an anæsthetic what V. W. could have done for himself within the first few weeks of the accident.

He had in the meanwhile acquired a habit of leisure which he was unwilling to disturb. His wife took in lodgers. They had no children, and he was comfortable and well looked after. He went to bed at 10 P.M. and arose at 9 A.M. A contrast to the ordinary life of a labourer on the line. This idyllic existence ceased, however, when his employers, on advice, refused to continue to pay his compensation, and the man resumed his normal work.

There is no difficulty about entitlement with regard to a fracture; the difficulty here arises as to the date of the man's return to his regular employment. Probably few of us, who are engaged in hospital practice, realise the length of time that elapses before a workman, who has broken a limb, particularly one of the lower limbs, returns to his normal work. His fracture may do well and the surgeon is pleased with the union and with the alignment. The patient passes on to the surgical out-patient department or to the orthopædic department, and everyone is satisfied with the return of function, as the result of massage, exercises, &c. Possibly some months afterwards an energetic surgeon or house surgeon may send for him and be told that he has returned to work. Too often he has gone back to "light work," and may remain on that for one, two, or three years or more. Sometimes he obtains his certificates from the hospital, but more often from his panel doctor, who did not have the opportunity of watching the case from the beginning.

As a rule, light work is not what may be regarded as economic labour. Sweepers, watchmen, mess-waiters, lift boys (who are no longer boys) are the usual type of "light workers." They are being paid a wage which, while it never exceeds 30*s.* per week, equals half the wage of the employment at the time of accident plus half the difference between this and the wages they would have received had they remained in their old occupation.

Fractures in the region of the ankle-joint are the most typical examples of this. I remember nearly 20 years ago the late Mr. Clinton Dent saying that seldom, if ever, did a policeman who had sustained a Pott's fracture return to his normal duties. These are two common instances.

A man, aged 54, sustained a fracture in the region of the right ankle in July, 1921. He was seen in March, 1924 (nearly three years afterwards), when he displayed a result of which any surgeon might be reasonably proud, and there was no stiffness of the joint. There was, however, the slightest degree of flat-foot. He had been told to continue the exercises he had learned in hospital, but his clumsiness in performing them at once proclaimed the fact that he had not done so.

The next case, aged 47, was seen in June, 1925. Fracture of left ankle in March, 1923. So far as the fracture was concerned the result was excellent. There was no deformity of the ankle, and the movements of the joint were good. There was, however, a slight degree of flat-foot and the muscles of the calf were somewhat wasted. He had been taught to do exercises at the hospital, but had not done any for some months.

I could multiply these cases ad libitum. Good anatomical results, no stiffness of the joint, and everything possible done at the hospital to promote the recovery of function. But numbers of these men leave the hospital and spend their time standing and limping about and seldom, if ever, make any attempt to continue the exercises they were taught to do. There is, of course, in addition to these the usual proportion of bad results of fractures. These may be regarded as inevitable as the result of the original violence. Occasionally, too, one comes across a case where no attempt was made at the hospital to restore the function of the limb after union has taken place. But there remains over and above these a number of men to whom function appears to have been restored, and yet who do not possess the will to make economic use of it.

Our ordinary hospitals appear to have done what is usually regarded as their duty. They are chiefly concerned with the humane endeavour to save lives and to restore function to damaged limbs. Whether the man makes any economic use of his restored function does not appear to be any concern of theirs. Industry would seem to require another kind of hospital, or what might be called an "after-care centre," where by constant personal supervision and encouragement these men can be induced to overcome the apparent diffidence they have in their own powers. Hospitals of this sort were initiated towards the latter part of the late war where men, by means of workshops and other devices, were taught to make use of their already restored powers and were, by encouragement and precept, inculcated with the will to return to their duties. There is something wrong when we find men, three or four years after a comparatively trivial injury to the muscles of the back

or a straightforward fracture of the leg, still unable or unwilling to take their proper place in life.

I have touched but slightly on the fringe of a vast subject. Many obvious subjects for discussion, for instance, hernia, I have not mentioned.

BLOOD TRANSFUSION IN CHILDREN'S PRACTICE.

BY C. HOPE CARLTON, M.CH. OXF., F.R.C.S. ENG.,
LATE RESIDENT SURGEON, HOSPITAL FOR SICK CHILDREN, TORONTO.

THIS paper is an attempt to estimate the place of blood transfusion in the treatment of sick children. During the year 1925 I gave a large proportion of some 600 transfusions at the Hospital for Sick Children, Toronto, with results excellent in some cases, inconclusive in others. While my conclusions are based on these observations, I submit also statistical evidence to serve as a basis of comparison. Statistics are no substitute for clinical judgment, but they may confirm it or, by conflicting with it, they may direct attention to some unsuspected factor. The technique of the transfusion was the same throughout the year; it has been standardised for several years past at this hospital. The possibility of a technical breakdown is, therefore, practically eliminated.

THE BLOOD TRANSFUSION OPERATION.

To be successful this operation must be performed with the same care and under the same conditions as any other major operation.

The donor, wearing sterile cap and gown, lies upon an operating table with his arm on an arm-board placed at right angles to his trunk. The elbow is cleaned all over with absolute alcohol and covered with sterile towels, leaving the antecubital fossa exposed. A folded towel under the olecranon ensures hyperextension. On a second table lies the recipient with his feet near the donor's arm. The foot which is not being used is made fast with a webbing strap and the other is held by a nurse, who rotates it outwards so as to expose the internal saphenous vein at the ankle. The patient's foot and the nurse's hands are cleaned with absolute alcohol and covered with sterile towels, a circle of skin being left exposed round the internal malleolus. Two operators are necessary, one by the donor's arm and the other by the recipient's foot. They must be within reach of each other and of the instrument table, and both they and the instrument nurse must be surgically clean and wear cap, gown, mask, and gloves.

The first step is to examine the blood-grouping certificates issued by the laboratory and to make certain that they refer to the donor and recipient present and that these are of the same group. (Universal donors are never used.)

The recipient's operator, using a fine needle and 0·5 per cent. novocaine, raises a wheal over the internal saphenous vein, or, if the vein is not visible through the skin, over the ankle in front of the internal malleolus. An incision half an inch long is made at right angles to the vein and opened up with the points of fine scissors. The vein is identified and two fine plain catgut ligatures passed under it. The ligature nearer the heel is tied and artery forceps clipped on its loose ends to serve as a retractor. The other ligature is looped around the vein with a surgeon's knot, but is not drawn tight. The half inch of vein between the two ligatures is nicked in an upward direction with a pair of fine scissors; the transfusion needle is pushed through the nick and up the vein and the loose ligature tightened round it.

These transfusion needles are made of gold in various sizes. Their distal ends are smooth, having a short bevel, whilst their proximal ends are shouldered and take an adapter, to which is attached two inches of rubber tubing. The syringes used for transfusion are all-glass Luer syringes, graduated to 20 c.cm. and holding 25 c.cm. They are lubricated with sterile liquid paraffin.

To make sure the needle is actually in the vein a Luer syringe containing 5 per cent. glucose is attached by inserting its nozzle in the rubber tube and the plunger gently depressed. If the solution runs with difficulty and raises a subcutaneous swelling the needle must be withdrawn and reintroduced.

When fluid enters the vein easily the operation on the donor is commenced. To withdraw blood from the donor a 4 ft. piece of sterile flannel is wetted, passed round the upper third of his arm, tightened, and tied once. He makes the veins of his forearm stand out by clenching his fist and a wheal is raised with 0·5 per cent. novocaine over the most prominent vein. The skin is incised by transfixion through this wheal and the needle is passed through the incision into the vein. Were the needle pushed straight through the skin it might transfix both walls of the vein. The blood is withdrawn into an all-glass Luer syringe, graduated to 20 c.cm., the plunger of which has been lubricated with paraffin. The syringe is connected by two inches of rubber tubing to a metal adapter which fits the shoulder of the needle. The needle is made of rustless steel; its length is 4 in. and its calibre 2 mm. At its proximal end it has a square shield, the straight edge of which rests on the skin and prevents rotation. At its point it has a short sharp bevel. It is inserted into the donor's vein as follows.

The syringe, rubber tube, adapter, and needle are coupled up. The operator holds the needle between the thumb and first two fingers of the right hand and inserts the point through the skin incision, so that the needle lies at a slight angle to the vein. Steadying the skin by the side of the needle with his left thumb and forefinger, and holding the needle with his right thumb and forefinger, he pushes the point into the vein. At the moment of entry blood appears in the syringe. He now takes hold of the needle with his left thumb and forefinger and continues to hold it in this way throughout the operation. When the syringe is filled it is disconnected and handed to the other operator, who injects the blood into the recipient at the ankle. At the same time the instrument nurse hands another glass syringe to the donor's operator. There are five syringes in circulation between donor, recipient, and instrument nurse. The instrument nurse washes each syringe through with normal saline as she receives it and dips the end of the plunger in sterile paraffin. When the operation is complete the needle in the recipient's vein is withdrawn, the second ligature tightened, the wound closed, and a bandage applied. At the same time the donor's tourniquet is relaxed, the needle withdrawn, a pad placed on the wound, and the elbow flexed. Oozing soon stops and a bandage is then applied.

In my experience there is no better method of transfusing blood than this; it is simple, clean, and swift. The patient receives whole blood, yet clotting is rare. It can only occur in the needle, the rubber tube, or the syringe, any one of which is quickly replaced by a spare from the instrument table. I have often seen eight transfusions carried out without a hitch in two hours.

Infants and young children can safely take 15 c.cm. of intravenous fluid per pound body-weight, and the time allowed for this is five to ten minutes. In thoracic disease not more than 10 c.cm. per pound body-weight should be given, and that in not less than 25 minutes. This type of case is rare, as transfusion is of little value in thoracic disease.

Modifications of the Transfusion Operation.

1. *The use of citrated instead of whole blood.*

This is necessary when donor and recipient must be kept apart, as in acute infectious disease, and also if the recipient has a blood infection. The donor enters the operating room first and his blood is withdrawn in the ordinary way, but with 20 c.cm. syringes each already containing 2 c.cm. of 4 per cent. sodium citrate solution. The resulting dilution of citrate (0·4 per cent.) is sufficient to prevent clotting. The syringes are emptied into a sterile vessel surrounded with warm water. When sufficient blood has been collected the donor leaves and the recipient is brought in. The citrated blood is then injected by the usual method.

2. *The exsanguinating-transfusion operation.*

This operation, introduced by the late Dr. Bruce Robertson, of Toronto, aims at the removal of supposedly toxic blood and its simultaneous replacement by blood from healthy donors.

60 c.cm. per pound body-weight of the patient is collected by the citrate method and set aside in warmed vessels. The patient is brought in and a needle inserted at the ankle. One operator takes charge of this and the subsequent transfusion; the other drapes the groin and cuts down on the upper end of the opposite saphenous vein, exposing it as in Trendelenburg's operation for varicosity. The skin is infiltrated with 0·5 per cent. novocaine and incised, the fatty tissues are separated, and the vein identified at the level of the deep fascia over the adductor longus. Two ligatures are passed round it and the lower one is tied and left long to serve as a retractor. The upper ligature is looped round the vein. Between the ligatures the vein is nicked and a long steel needle of uniform thickness with a blunted distal end is inserted and slipped onwards until its point lies in the external iliac vein, when blood will flow from it. It should

be smeared with paraffin to make it enter easily. A 20 c.cm. Luer syringe containing 2 c.cm. of 4 per cent. sodium citrate is connected to the needle, and as one syringe is filled another is put in its place.

The two operators now commence the exsanguinating transfusion. As blood is withdrawn from the external iliac vein of one leg fresh blood is introduced at the opposite ankle. The exsanguinating operator sets the pace, since it is harder to withdraw blood than to inject it. An assistant keeps a written record of the amount of blood given and withdrawn, and calls out the figures at frequent intervals. It is essential that these figures be recorded accurately and announced audibly, to enable the operators to realise at once if any variation occurs in the total volume of the circulating blood. Rapid variations may lead to collapse on the one hand or cardiac embarrassment on the other.

At the end of the operation the needles are withdrawn, the veins tied off, and the skin sewn up.

Reactions during Blood Transfusion.

Reactions are almost unknown if the amount given and the time taken are kept within the limits laid down. They may possibly occur in premature or very young babies, and the early signs are cyanosis, distension of the veins of the neck, and lividity of the lips and finger-nails. Transfusion should be stopped and the child immersed in a mustard bath for 30 seconds and then rubbed briskly. Five minims of 0·001 adrenalin are given and the child is supported in a sitting position. If this does not give relief, blood is withdrawn from the longitudinal sinus by inserting a guarded needle through the anterior fontanelle.

RESULTS OF BLOOD TRANSFUSION IN CHILDREN.

1. *Accidental Shock.*—Blood transfusion is the most potent single remedy for this condition, as it restores the child when the commoner measures fail. Seven out of eight children so treated recovered from the initial shock, although their injuries were so severe that five ultimately died.

2. *Post-operative Shock.*—Post-operative transfusion increases the chance of success in certain emergency operations, and is an invaluable stand-by in operations of election which may unexpectedly cause death by shock. After craniotomy it is especially useful. In this series three children out of four developed a regular pulse and good colour and recovered consciousness, although before transfusion they had shown few signs of life. The repair of hare-lip, undertaken as it is in very young infants, may be complicated by shock; this happened on ten occasions. Transfusion improved them all and they made good recoveries. Twenty-two out of 24 infants who underwent pyloroplasty for pyloric stenosis improved after transfusion, and 20 made a good recovery. It was necessary to transfuse 14 children after operation for intussusception; all but one of these appeared better for it, though five ultimately died. On the other hand, transfusion was of no value after rib resection for empyema.

3. *Prematurity.*—Forty-eight premature infants received 73 transfusions, in 60 per cent. of which good results followed. A transfusion should be given on the seventh day of life if the infant is not gaining on a liberal diet.

4. *Hæmorrhage of the Newly Born.*—The commonest sites of bleeding are the rectum, umbilicus, and stomach. Transfusion is not a sovereign remedy but is the best available. It arrested the bleeding in 11 infants out of 17, and the clotting time in these 11 was found to be reduced by one-half.

5. *Septicæmia.*—Our observations hold out little hope that blood transfusion will prove an efficient weapon against septicæmia. Of 34 children from whose blood micro-organisms had been grown six got better and 28 died. The actual organisms were as follows:—

	Cases.	Deaths.
Staphylococcus aureus ..	12	11
Streptococcus hæmolyticus	13	10
Pneumococcus	6	5
Bacillus coli	2	1
Streptococcus viridans ..	1	1

Out of 50 blood transfusions only 17 did the patient any good. Exsanguinating transfusions were of no more use than simple transfusions.

The details of the six cases which recovered are as follows:—

(*a*) A streptococcal septicæmia following a compound fracture. A simple transfusion on the tenth day of the disease was followed by improvement in the appearance of the wound.

(*b*) A streptococcal septicæmia two days after opening up an acutely inflamed bone. No benefit followed exsanguination, although the child ultimately recovered.

(*c*) A streptococcal septicæmia four days after opening up a bone. An exsanguination lowered the temperature and improved the colour and appetite.

(*d*) A coliform septicæmia following umbilical sepsis. A simple transfusion followed by an exsanguination caused great improvement.

(*e*) A pneumococcal septicæmia following peritonitis, pneumonia, and empyema. The abdomen was drained and the child exsanguinated. Four days later the improvement was considerable.

(*f*) A staphylococcal and coliform septicæmia in a premature infant. Great improvement followed exsanguination.

As far as can be judged from these observations blood transfusion is not a remedy for active septicæmia. However, it does not make the patient worse, and there is always the hope that the solution may lie in some future modification of it.

6. *Tissue Infections.*—This group includes children who suffered from acute infection of one or more organs, but whose blood did not contain demonstrable organisms. That these were nevertheless often present is suggested by the results of blood transfusion, which were almost as unsatisfactory as in septicæmia. Five out of 11 children suffering from erysipelas died after receiving one or more exsanguinating transfusions without any benefit. A simple transfusion assisted the fading of the rash in the seven who recovered, while an exsanguinating transfusion brought down the temperature.

In the treatment of pneumonia little benefit was observed from blood transfusion. The actual operative danger of cardiac embarrassment was avoided by giving very slowly not more than 10 c.cm. of blood per pound body-weight. The only cases of pneumonia benefited by transfusion were already convalescent. In the earlier stages of broncho-pneumonia no improvement was seen in 29 out of 33 children transfused, while in lobar pneumonia the results were very little better. Transfusion has little value in meningitis, whether cerebro-spinal, acute purulent, influenzal, or tuberculous. All nine cases died. In the treatment of cellulitis of the cancrum oris type transfusion did little good and all the patients died. In general peritonitis only one patient out of seven treated by blood transfusion appeared any better; he, however, recovered. Far better results are obtained from continuous intravenous saline, now that a satisfactory apparatus has been devised for slow administration over several days. In pyelonephritis and in sepsis of the newly-born blood transfusion was of slight value. In acute mastoiditis (in one case accompanied by lateral sinus thrombosis) the results of transfusion were very good, but it is difficult to generalise from three cases.

7. *Burns and Scalds.*—So valuable is blood transfusion in these accidents that it should be the rule to group the blood of the friends as soon as a burned child arrives at the hospital. Their blood may be needed for two purposes. The first is to combat the shock of the burn within the first six hours; the result is often dramatic. The second purpose is not so widely understood; attention was called to it by the late Dr. Bruce Robertson, of Toronto. It is to counteract the toxæmia which a burnt child frequently develops. The onset is from 24 to 96 hours after the burn, and the symptoms are: (1) a sudden and rapid rise in temperature, perhaps six degrees in four hours; (2) a corresponding rise in pulse-rate; (3) muscular twitching and perhaps convulsions; (4) vomiting; (5) drowsiness or irritability. This secondary toxæmia is less often seen than it used to be owing to the inclusion in modern treatment of abundant administration of fluid and the selective action of the tannic acid spray (Davidson).

The treatment advised is an immediate exsanguinating transfusion, followed by a second one if the temperature does not fall within 24 hours. All the six children observed who developed toxæmia and received this treatment showed a rapid fall of temperature and mental improvement; muscular twitchings and vomiting ceased. Five of the six recovered and left the hospital. A burnt child has three dangers to overcome before convalescence—shock in the first 12 hours, toxæmia from the second to the fourth day, and sepsis after the first week. Against the first two dangers blood transfusion and the tannic acid spray are effective safeguards, but for the third little can be done and bad cases terminate in ten days.

8. *Acidosis.*—This is a common complication of the infections of childhood and infancy. Clinically, there is drowsiness with acetone in the breath and urine. The respiration is shallow and each inspiration is followed by a pause. Of the 17 children observed 14 were treated successfully by simple transfusion.

9. *Nutritional Disturbances of Infancy*—Transfusion benefits many children who do not respond to modifications of diet and to interstitial or intravenous glucose and saline. These patients may be divided into four groups:—

Group I.: Infants who fail to do well but are not acutely ill. These may be underfed or overfed breast babies, or bottle babies getting too much fat. Out of 16 infants who were losing weight 14 began to gain after transfusion, while appetite improved in 10 out of 12. Vomiting nearly always yielded to transfusion.

Group II.: Marasmic babies who are emaciated, subnormal in temperature, and liable to intercurrent infections. Of a batch of 75 of these, three-fifths gained in weight and about one-half ultimately got well after transfusion.

Group III.: Summer diarrhœa. Of 21 infants treated, two-thirds were improved and about three-quarters ultimately got well.

Group IV.: Acute intestinal intoxication. This is a much more serious condition than summer diarrhœa. Although diarrhœa and vomiting are frequently present, the outstanding diagnostic features are drowsiness and tissue dehydration. The onset is sudden, with great collapse, and often with muscular twitchings and convulsions. The complaint is common towards the close of a hot, dry summer and is often dangerous. In my judgment a simple blood transfusion should always be given. Of 139 infants who received 179 simple transfusions nearly 70 per cent. were improved, and the drowsiness, vomiting, and diarrhœa were relieved in more than 60 per cent. Forty-one exsanguinating transfusions were carried out, but I consider that the simple operations are as effective. The mortality among patients treated by transfusion was 37 per cent., considerably less than that among patients treated by other methods.

10. *Acute Infectious Diarrhœa.*—This is due to a specific bacterial infection of the intestine. The onset is sudden, with pyrexia, diarrhœa, and vomiting, which are followed by intense dehydration and collapse. There were only seven cases in our series, and three of them died. Improvement followed four out of eight simple transfusions, and all of three exsanguinating transfusions.

One particularly striking case was a boy of 12 who had had a *B. coli* enteritis for 18 hours and in whom it was difficult to detect any sign of life on admission. After an exsanguinating transfusion he looked better and ultimately recovered.

11. *Hæmorrhage.*—Transfusion a uniform success.

12. *Hæmophilia.*—Bleeding may be arrested by blood transfusion more than once in the same patient. Transfusion was successfully employed in five cases, but in three of them it had to be repeated.

13. *Secondary Anæmia.*—Clinical improvement often follows transfusion for anæmia due to chronic infection of the tonsils or kidneys. No improvement occurred in the anæmia of chronic endocarditis.

14. *Purpura.*—Temporary benefit followed transfusion in thrombocytopænic purpura; and it was a valuable preliminary to splenectomy in three cases. In hæmorrhagic purpura of uncertain type it was used three times with little benefit.

15. *Congenital Syphilis.*—Six children receiving the usual antiluetic treatment were transfused without apparent improvement.

Summary.

1. The transfusion of whole blood by means of glass syringes is an easy and successful operation which may be performed even on the newly born. 2. As a combatant of shock and a corrector of hæmorrhage it is a valuable routine adjunct to many operations of childhood. 3. It guards a newly-born child against the dangers of prematurity or hæmorrhage. 4. It may save the life of a child suffering from burns. 5. It is an aid to the treatment of the metabolic toxæmias of infancy.

In conclusion, I wish to express to Dr. W. Edward Gallie, the surgeon-in-chief, and to the other members of the surgical staff of the Hospital for Sick Children, Toronto, my gratitude for their instruction and for the opportunities they gave me of studying patients under their care and of inspecting the records. I wish also to thank Dr. C. F. W. Hames, the resident physician, for his help in assessing the results of transfusion on the metabolic toxæmias of infancy.

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A NOTE ON THE MICROSCOPIC APPEARANCES OF THE SPINAL CORD IN TETANUS.

BY SARAH H. NELSON, M.B., CH.B. GLASG.,
MC CUNN RESEARCH SCHOLAR IN THE UNIVERSITY OF GLASGOW.

(*From the Department of Pathology, Royal Infirmary.*)

RECENT literature on the histology of the nervous system in tetanus reveals great diversity of opinion regarding the changes which are met with in the spinal cord in that disease. In none of the published cases have the posterior root ganglia been examined, and as I have found definite changes in these ganglia, I venture to publish this account of the histological appearances of the cord in a single case of tetanus.

Clinical History.—E. S., aged 16, was admitted to the Glasgow Royal Infirmary under the care of Mr. John Patrick on June 3rd, 1924. Sixteen days previously she had received a puncture wound on the sole of the left foot from a dirty nail out of a packing case. An abscess formed at the seat of injury, but resolved under treatment and appeared to be soundly healed. A fortnight later the patient felt stiff and her stiffness increased. On admission to hospital two days later a distinct but not marked risus sardonicus was present. The jaws were not separable by more than half an inch. The neck was rigid and there was rigidity of the arms with slight flexion at the elbow-joints. The body was very rigid and the normal lumbar curvature exaggerated. The legs were rigid, extended at the ankle-joints, and the feet arched. Occasional tremors affected the trunk and extremities, but were not sufficiently marked nor of long enough duration to constitute definite convulsions. Temperature 100° F., pulse 108, respirations 30. Anti-tetanic serum was given subcutaneously, intravenously, and intrathecally during her three days' residence in hospital, but the patient's condition did not improve. After the last administration of antitoxic serum, which was intrathecal, the patient complained of pain in the left leg and a frontal headache. Swallowing and articulation became difficult. There were occasional tremors and spasms and there was marked rigidity of the whole body. The temperature rose to 102·4°, pulse 158, respirations 50, before death, which took place on June 6th, the fifth day of the illness. So far as could be ascertained, the temperature during the last three days of life ranged from 100° to 102°.

Post-mortem Examination (June 6th).—Trismus was present. The face and neck showed marked post-mortem lividity. The right side of the heart was dilated and cloudy swelling of the whole myocardium was present. There was some fatty degeneration of the intima of the aorta and several punctiform hæmorrhages were present in the anterior mediastinum. The lungs showed subpleural hæmorrhages with extreme congestion of their substance, and the lower lobes were very œdematous. The liver was congested and exhibited marked cloudy swelling. Some unusually large patches of subcapsular fatty degeneration were evident. The spleen was larger than normal and congested. The kidneys showed congestion and cloudy swelling. On microscopical examination the wound revealed pyogenic granula-

tion tissue, but no organisms could be demonstrated. Cultures from the wound were not made. The thecal canal showed an apparent excess of cerebro-spinal fluid, but no definite changes were noted macroscopically in the spinal cord. Unfortunately, the brain was not kept.

The cord was fixed in alcohol. Sections were prepared by the paraffin process from the cervical, dorsal, lumbar, and sacral regions of the cord, and several of the spinal ganglia of the posterior roots were also examined, including those of the fifth lumbar and first sacral segments. The following staining methods were employed: (1) hæmalum and eosin; (2) Heidenhain's hæmatoxylin and Van Gieson; (3) acid hæmatoxylin; (4) toluidin blue for Nissl's bodies; and (5) Victoria blue for neuroglia (Anglade and Morel, Anderson's modification).

Microscopical Examination.—The vessels of the pia mater were congested, as also were some of the vessels between the bundles of nerves entering the spinal ganglia. There was dilatation and congestion of the vessels of the cord and hæmorrhages were seen, especially in the posterior columns. There was no perivascular infiltration and no overgrowth of neuroglia. Plasma cells were not present, and there was no degeneration of the tracts of the white matter.

The cells of the anterior horn showed various degrees of change. The number of cells was decreased, and of those remaining a few showed no pathological changes. In others there was complete chromatolysis with loss of granular material. Eccentricity of the nucleus was noted, but not to any great extent. Some of the cells were characterised by the deeply staining quality of their nucleoli. A marked feature was the lack of differentiation of the nucleolus and nucleus. The intranuclear network appeared homogeneous, staining uniformly with the cell protoplasm. These changes were present at all the levels examined.

The cells of Lockhart Clarke's column showed all degrees of change—e.g., eccentricity of nucleus and chromatolysis, but there was no apparent diminution in the number of the cells.

Cells of the Posterior Root Ganglia.—Normally in the spinal ganglion there are two types of cell: (1) large and faintly staining; (2) smaller and deeply staining. In the sections of the present case there seem to be a lack of internal differentiation of the substance in both types. The nucleolus could be distinguished with difficulty. The intranuclear network stained pink (stained with toluidin blue, counter-stained eosin) or bluish, whereas the normal network shows little evidence of having taken up any stain. This change was more marked in some cells than in others. In some cases the nucleus was so swollen as to occupy the greater part of the cell, the cytoplasm being much shrunken. There seemed to be an excess of brown pigment in some of the cells (brown pigment was observed in the cells of the posterior root ganglia of a normal cord which was examined at the same time). These cells showed other degenerative changes—e.g., chromatolysis, vacuolation, and eccentricity of the nucleus. Neuronophagy was present but was not marked, and neither congestion nor hæmorrhage was noted.

Summary.—The chief changes found were in the nerve cells, both sensory and motor, and they were characterised by disintegration of the Nissl's bodies, pyknosis, shrinkage of the cell protoplasm, and eccentricity of nuclei. The presence of congestion and hæmorrhages was notable in the cord, but there was no round-celled infiltration or any change indicative of an inflammatory process.

Discussion.

The published accounts of the microscopical appearances of the cord in tetanus are conflicting. Some observers have found no changes or only congestion, whereas others have reported distinct lesions. Goldscheider and Flatau found an extreme diffuse chromatolysis of the ganglion cells and their observations were confirmed by Goebel. Westphal noted swelling of the nucleolus in a few cells in a single case.[1 2] In Hunter's series of three cases no changes were found in one case, while differences from the normal were found in the other two. Instead of triangular-shaped collections of deeper stained granules in the more faintly stained groundwork of the cells, the whole cytoplasm had a more or less uniform staining and showed none of this differentiation of its substance.[3] Charcot and Michaud described a subacute central myelitis and Bouchard a proliferation of neuroglia with pigmentation of the cells of the anterior horn. Rispal has described changes in the ganglion cells in his cases. Similar chromatolytic changes have been obtained in animal experiments.

There has been much controversy, also, respecting the significance of these lesions, whether they are to be assigned to the toxin or the tetanus bacillus or to the clinical manifestations of the toxæmia—e.g., convulsions which are believed to cause exhaustion of the ganglion cells, hyperpyrexia, &c.

The mode of diffusion of the toxin is also disputed. Marie and Morax, Meyer and Ransome [4] concluded from their work that the toxin passed up the axis-cylinders, which were reached from the motor end plates, and that maximal effects were obtained when the toxin was injected into a motor nerve and minimal effects when a sensory nerve was the site of injection. Teale and Embleton [5] concluded that the toxin also ascended to the central nervous system to a great extent by the way of the perineural lymphatics, and they found that the dorsal root ganglia had a definite filtering or blocking action for tetanus toxin.

In the case under discussion marked changes were found in the cells of the posterior root ganglia, in the cells of Lockhart Clarke's column, and in the cells of the anterior horn—namely, loss of differentiation of substance, chromatolysis, vacuolation, and eccentricity of nuclei. It is difficult to believe that this biochemical change is a sequel to the convulsions, since the sensory cells are affected as well as the motor cells and even more severely. While degenerative changes were observed in the ganglion cells throughout the cord, it is notable that the cells in the posterior root ganglion of the left fifth lumbar segment exhibited a perceptibly greater degree of degeneration than those of the other posterior root ganglia examined in the cervical and dorsal regions. This phenomenon admits of two explanations. On the one hand, the toxin might be transmitted by the nerve-fibres of the sensory root as well as by those of the motor root; or, on the other hand, diffusion of the toxin might proceed by the perineural lymphatics outwards from the cord, so as to injure the cells of the posterior root ganglion. In the latter case the maximal degree of injury in the posterior root ganglion of the fifth lumbar segment might be correlated with a maximal concentration of toxin at the level at which the toxin entered the cord.

These observations appear to warrant the deduction that the histological changes are attributable directly to the tetanus toxin and are not an expression of over-activity of the cells.

No evidence is available to indicate whether diffusion throughout the cord occurs by way of the lymphatic channels or by the axis-cylinders, but the initial symptom in the progress of the disease—viz., trismus, which is the result of the toxic process in the bulb, does prove that this diffusion proceeds rapidly.

I am indebted to Prof. John H. Teacher for the privilege of working under his supervision in the pathological department of the Infirmary, and to Mr. John Patrick for the opportunity of examining the spinal cord in this case and for the clinical history.

Bibliography.—1. Nouveau Traité de Médecine, Paris, 1924. 2. Archives of Neurology and Psychiatry, Enrique Barros; Zeitschr. f. d. Ges. Neurol. and Psychiatr., xciii., 720, November, 1924. 3. W. K. Hunter: The Microscopic Appearances of the Spinal Cord in Tetanus, Brit. Med. Jour. August 7th, 1897. 4. R. Muir and J. Ritchie: Manual of Bacteriology. 5. F. H. Teale and D. Embleton: Jour. of Pathology and Bacteriology, xxiii., 50–68.

ROYAL MEDICAL BENEVOLENT FUND.—The following are some additional cases relieved at the last meeting:—

Three children of M.D. Edin. who practised in Yorkshire and died in 1916. Only income £15 per annum; uncles contribute £100 per annum. They live with a grandmother and an aunt. The Fund has helped with the maintenance to the extent of £93 during the last eight years and voted a further £18.

Daughter, aged 67, of M.R.C.S. who practised in London and died in 1885. Applicant is the eighth daughter of 11 children and supported herself up to 1919 when, owing to the war, her employers went out of business. Unable to obtain another post, now lives with a married sister and helps in the house, but the sister can ill afford to keep her. Relieved three times, total £54; now voted £26 in 12 instalments.

M.D. Edin., aged 72. Is bedridden and supported by his brothers, but they are unable to do more and the Fund was approached for a grant for pocket-money. In 1925 the Fund voted £17 and now a grant of £18 in 12 instalments has been made.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos-street, London, W. 1.

Clinical and Laboratory Notes.

MALIGNANT TUMOURS FOLLOWING ONE APPLICATION OF AN IRRITANT.

BY H. P. PICKERILL, C.B.E., M.D., CH.M. BIRM.,
SURGEON IN CHARGE OF THE FACIAL AND JAW DEPARTMENT, DUNEDIN HOSPITAL, NEW ZEALAND.

LAST year Dr. Marshall Findlay[1] recorded the results of some extremely interesting and apparently important experiments, demonstrating the experimental production of cancer by one application of tar. If these experiments are confirmed, as may be expected, they will have a most important bearing upon workmen's compensation cases. I was much struck by the fact that Dr. Findlay apparently could quote only two clinical cases where malignancy had resulted from the single application of an irritant. I feel sure there must be more. It is highly desirable that such cases should be published, and I therefore place on record the following three cases, which, during the last year, were referred to me for excision of facial growths and plastic restoration.

CASE 1.—A. B., man aged 45. Healthy, excellent physique. Showed a typical malignant ulcer of the lower lid of the left eye at the inner canthus. The history he gave, subsequently corroborated fully in the court and admitted as true by the judge, was that five months previously whilst at work on a dredge, a red-hot cinder burned him in the corner of his eye. The sore did not heal and gradually became larger. It was also established in the evidence that there was no lesion present in the eye before the burn. In March last year I removed the growth freely. The pathological report was as follows: "One edge of specimen shows masses of closely packed spindle-shaped cells in the subcutaneous tissue. Although there is a suggestion of cornification, the general structure is that of a rodent ulcer. It is a basal-celled carcinoma (rodent ulcer)."

The fact that there was cornification present raised some doubt as to whether it should not be classified as an epithelioma.

CASE 2.—C. D., man aged 43. Good health. Admitted complaining of a sore behind the right ear, which had been present for nearly two years and which had resulted from a burn from a lighted cigarette which he was carrying behind his ear. In September last year I removed half the ear and glands of the neck. The pathological report was as follows: "Tissue consists of masses and columns of squamous tumour cells, the masses showing central cornification. The stroma consists of loose fibro-cellular tissue heavily infiltrated with round cells. It is a squamous-celled carcinoma (epithelioma).

Obviously no compensation was involved in this case.

CASE 3.—E. F., man aged 65. Admitted in September last year. A large fungating growth of the upper lip about the size of a hen's egg. Patient gave a definite history that 15 years ago he was burned on his lip by a very hot pipe. The pipe (tobacco) had been resting on the side of a furnace when he took it up. Patient stated that the burn took a very long time to heal and there was always a lump on the inner surface of his lip, which started getting larger rapidly about six months ago. The lip and glands of neck were removed and the following pathological report was received: "The section of a piece of tissue from lip shows a papillomatous type of growth with much more surface cornification than downgrowth. The glands of right and left sides show no evidence of malignancy. It is a slowly growing malignancy supervening on a squamous papilloma of lip."

In Case 1, referred to above, the patient was unsuccessful in obtaining any compensation because at that time, here, we were unable to produce any evidence of malignancy having resulted from the application of a single irritant. I should imagine that were the case to be tried again now, the patient might be more successful.

It is interesting and perhaps significant to note that in each of these three cases there is a definite history of a burn, and that Dr. Findlay produced his cancers in mice by the single application of *hot* tar.

[1] THE LANCET, 1925, i., 714.

A CASE OF SURGICAL EMPHYSEMA IN SCARLET FEVER.

BY F. R. CURTIS, M.Sc., M.B., CH.B. LEEDS,
RESEARCH ASSISTANT IN PHYSIOLOGY, MIDDLESEX HOSPITAL MEDICAL SCHOOL;
AND
I. C. THOMSON, M.B., CH.B. ST. AND.,
ASSISTANT MEDICAL OFFICER, MANCHESTER FEVER HOSPITAL.

CASES of non-bacterial subcutaneous emphysema do not make a large chapter in medical literature. In 1919 Alexander and Follett[1] published a very complete survey of the condition with clinical instances. They mentioned cases due to trauma of the air-passages, nasal and frontal sinuses, &c., and later, in 1922, Rosenheim[2] recorded a case of traumatic surgical emphysema after tonsillectomy. But so far as we can find there seems to be no record of emphysema occurring during scarlatina.

The patient, a girl aged 6 years, was admitted on Dec. 10th, 1925, with a well-developed punctate erythema on the trunk and limbs. The tongue showed partial peeling, and the papillæ were prominent. The fauces were injected, the tonsils slightly enlarged and slimy, but no exudate was present. The cervical glands on both sides were somewhat enlarged. On the 11th the rash showed considerable blotchiness and staining. As the child's general condition was worse 20 c.cm. of antiscarlatinal serum were given. The tonsils and fauces now showed great ulceration and the cervical glands were larger, but no fluctuation could be detected. On the 12th to the 20th the child improved steadily in general health, though there was still considerable ulceration of the tonsils and enlargement of the cervical glands, especially at the left angle of the jaw. On the 21st, during routine examination, well-marked surgical emphysema was found, extending from the left mastoid process down the side of the neck on to the chest in front and behind, and spreading round the root of the neck to involve the right clavicular region. At this stage the throat showed marked erosive ulceration of the left tonsil spreading backwards on to the lateral pharyngeal wall. Sloughs were present in the pharynx, but no perforation was visible. Later the emphysema had extended to the left wrist and down the right side of the neck and chest. By midnight it was present over the whole trunk, being limited below by the iliac crests and Poupart's ligaments and above by the lower jaw, the mastoid processes, and superior curved occipital lines. On the 22nd both arms were involved as far as the wrists. Spread was taking place over the sacrum, but not over Poupart's ligament. There were no abnormal signs present in the chest, nor were there any alterations in the character of the respiration. A needle was inserted in the left infraclavicular region and much air escaped. In order to expel all the air, an incision was made under novocain, just in front of the left sterno-mastoid muscle at the level of the cricoid cartilage. The incision was deepened until air rushed out. The child was then bandaged tightly from below upwards. The wound was left open, protected only by a slight layer of sterile gauze as in tracheotomy cases. The child's general condition, which at first was fairly good, gradually became worse and death took place on the 24th.

Post-mortem Examination.—A dissection of the neck showed emphysema behind the platysma and superficial cervical fascia. The upper cervical glands were enlarged; one on the left side was breaking down. On the left side, too, there was a small collection of pus behind and below the posterior belly of the digastric, and passing behind the carotid sheath. The pus led to another small collection between the palatopharyngeus and the wall of the pharynx. In this situation, on a level with the junction of the tongue and epiglottis, was a small punched-out perforation one-tenth of an inch in diameter, lying in the centre of an ulcer behind the posterior faucial fold. No affection of the larynx was found. Unfortunately the pus was not examined, though clinically there was never any suggestion of gas-gangrene.

We are indebted to Dr. R. Veitch Clark, medical officer of health for Manchester, for permission to publish this case, which occurred at the Manchester Fever Hospital, Newton Heath.

[1] Alexander, M. E., and Follett, E. C.: Jour. Amer. Med. Assoc., Chicago, 1919, lxxii., 930–933.
[2] Rosenheim, S.: Amer. Otol., Rhinol., and Laryngol., St. Louis, 1922–23, xxxi., 1027–1031.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

THE MANCHESTER SCHOOL.

A MEETING of this Section was held on Oct. 15th, when Prof. A. DONALD delivered his presidential address, giving a Historical Survey of Obstetrics and Gynæcology in Manchester. St. Mary's Hospital, he said, was founded 136 years ago by Charles White, the author of a treatise which had revolutionised the treatment of puerperal fever. Other great names connected with the hospital were Charles Clay, a pioneer surgeon, the first to perform abdominal hysterectomy for fibroids; Charles Cullingworth, a great diagnostician who dispensed with the uterine sound; and William Sinclair, founder of the *Journal of Obstetrics and Gynæcology*. The teaching of the Manchester school had a certain individuality. It early supported the treatment of prolapse by a vaginal plastic operation. It believed in curettage for disturbed uterine function as manifested by disabling dysmenorrhœa, profuse leucorrhœa, &c. It regarded retroversion as the first stage of prolapse, treating it by vaginal operation and performing suspensory operations only when there was much pain, with enlargement, or sterility. It also made a practice of removing both ovaries in hysterectomy, as the result of experience and of statistical inquiry into the results of complete and partial operations.

Dr. WATTS EDEN proposed, and Dr. RUSSELL ANDREWS seconded, a vote of thanks to the President for his address.

Mr. VICTOR BONNEY read a paper on the outcome of 214 radical abdominal operations for

Carcinoma of the Cervix.

The operations in this series, he said, were performed between April, 1907, and October, 1921, and all had been followed up by letters or interviews. The removal had always been as drastic and radical as was compatible with recovery; the glands in the obturator fossæ and along the iliac veins were always taken away, and practically all the vagina. In most cases spinal and full ether anæsthesia was used. Many of these patients had been dismissed from hospitals as inoperable. The only contra-indications recognised were deep and extensive involvement of bladder, bowel, or both ureters. The only reliable grouping of cases was according to whether the regional lymphatic glands were or were not carcinomatous at the time of operation. Of the 214 patients, 121 had healthy glands and 93 had carcinomatous glands. The operability rate at the Middlesex and Chelsea Hospitals worked out at 63 per cent. up to 1910; this figure was retained in subsequent publications because after 1910 it was no longer possible to estimate the rate accurately. Probably in recent years it was more nearly 70 per cent.

Results.

The figures were:—

—	Five years later.	Seven years later.	Ten years later.
Died from—			
Operation ..	34 (15·8 %)	32	25
Recurrence ..	82 (62 %)	69	45
Other diseases ..	5	5	4
Lost sight of ..	8	20	20
Free from recurrence	85 (40 %)	56	36

Early recurrences usually took place in the pelvic cellular tissue, rectum, or bladder, or the upper end of the vagina if this had been left behind. Later recurrences were generally found in the tissue along the side wall of the pelvis and along the vessels or in the pelvic bones or vertebræ. Taking the operability rate as 63 per cent., then the 85 "five-year cures" represented a recovery rate of 25 per cent.—certainly an underestimate. Where the glands were carcinomatous the operative death-rate was 21 per cent., and the recurrences rose to 61 per cent. and occurred sooner. Nevertheless, it was encouraging to find that 23 patients with gland involvement remained healthy for five years at least. Five years had proved to be too short a time on which to claim a cure, and even seven years was not wholly sufficient, although it covered the vast proportion of recurrences, five of which became manifest between the sixth and seventh years. A "seven-year cure" was found to have been effected in 30 per cent., but this underestimated the successes, because 20 had by then been lost sight of. Where glands were carcinomatous only 29 per cent. remained well seven years after; but this implied that 17 individuals were well out of 76.

After Ten Years.—One hundred and thirty operations could be reviewed after a ten years' interval and showed an operative mortality of 19 per cent. and over 34 per cent. of "cures" among the survivors; 30 per cent. of these had had carcinomatous glands. Finally, a review of the whole series to-day brought out several new points: 57 patients were free from recurrence up to 18½ years, 32 of them having survived their operation ten years or more. The total number of known deaths from recurrence was 90—i.e., one-half of the number of those who recovered from the operation. The table was complicated by cases lost sight of, but an estimate of the chances of recurrence among these brought the number of "ten-year cures" up to 51. Thus slightly less than 50 per cent. of the patients who survived operation might be claimed as absolute cures. The chance of recurrence and cure in cases with carcinomatous glands was as two to one, and of those without gland involvement as two to three. The results of the radical operation might be calculated as follows:—

	Advanced group.	Moderately early group.
Operative deaths	20	10
Recurrences	54	36
Ten-year cures	26	54

The two groups could be further subdivided according to the degree of advancement, but the classes could not be distinguished clinically with any certainty. In reaching a prognosis every point had to be considered—e.g., age, physique, state of health, duration of pain and of bladder symptoms, motility of the cervix, involvement of vaginal wall and its situation if present, and duration of bleeding. The most reliable guides—where all might be fallacious—were pain, bleeding, and bladder symptoms. A useful rule was: three months' bleeding, growth certainly removable; six months' bleeding, possibly removable; 12 months' bleeding, most probably not removable.

Discussion.

Mr. CUTHBERT LOCKYER said he thought gynæcologists might become a little too optimistic if they based their conclusions on the statistics of an exceptional operator like Mr. Bonney alone. The good results of treatment by X rays and radium must also be taken into account and there was room for both. He himself would never do a Wertheim for advanced cases, since he believed better results were obtained by radium. He quoted the figures of American and Viennese workers, which he found very impressive. Moreover, the palliative results of radium and X rays had to be taken into account, the freedom from hæmorrhage, pain, and discharge which they ensured. He quoted a case of recurrence in the vault 15 years after operation.

Prof. FLETCHER SHAW recalled the early days of the Wertheim operation in this country and emphasised the debt of British gynæcology to Mr. Bonney and

Mr. Comyns Berkeley, who published their first series of results at a time when others were getting disheartened and might well have given up the method altogether. He himself had operated on 141 cases with a death-rate of 24 per cent. His operability rate was 57 per cent., but he did not regard this as a statistic of great significance; he operated on every case in which there was any chance of removing the growth because he believed the operation to be the one measure giving a chance of permanent cure. Pain was an important consideration; if there was pain the growth was usually irremovable. A very serious trouble was fat, and it seemed to be the fattest and healthiest-looking women who got carcinoma of the cervix. A very common cause of death was urinary infection, although shock accounted for the greatest number. He had found that almost all the recurrences took place in the first two years. Of his 42 cases with recurrence 21 occurred in the first year, 13 in the second, three in the third, one in the fourth, two in the fifth, one in the sixth, and one in the ninth year. If at the end of a year the patient was healthy, felt well, and had a good colour the chances were that she would do well. If she was flagging somewhat, without obvious recurrence, it was probable that she would develop a further growth during the ensuing 12 months. After five years he could trace 70 out of 75 patients who had survived operation; 15 (20 per cent.) had died and 28 (37·3 per cent.) had recurrences; two had died from other causes, one of tuberculous meningitis; 25 were alive and well (33·3 per cent.). After seven years 16 out of 50 were well (32 per cent.). The good results claimed for radium treatment were all from abroad and English figures came nowhere near them. Clinically, he had concluded that radium was not of much value, but on working out his statistics he found that 41 per cent. of those who were treated with radium before operation were alive and well, against 32 per cent. of those who had not had radium. He thought it was of great importance that workers should publish their figures for discussion.

Mr. L. C. RIVETT said that he had done 40 Wertheim operations in the last seven years; ten of the patients had died from the operation and three from urinary infection developed 10 to 12 weeks after leaving hospital apparently well. This infection was a very troublesome complication and did not seem to have any reference to bladder involvement by the growth. He agreed with Mr. Bonney's points for determining operability and that examination was most deceptive. If the growth was not removable he tied the internal iliacs, ovarian and uterine arteries and had often been surprised at the improvement following this measure. He thought that radium acted by producing a fibrosis which cut off the blood-supply, but the difficulty was to make the radium act on all parts of the growth.

Dr. RUSSELL ANDREWS said that few people did such an extensive operation on such difficult cases as Mr. Bonney or could equal his results. Prognosis was extremely difficult in any given case and he had often felt after operating that he had made a mistake, and yet found the patient alive and well five years later. Out of his first 100 he knew that 24 were well after seven years; most of them had been old or elderly when the disease arose. The most adverse symptom was long-continued pain. The cauliflower growth, not often seen nowadays, might lead to long-continued bleeding with little invasion of the cervix and so give an unexpectedly good result.

Mr. BONNEY, in reply, said that he did not agree that the success of the operation depended on dexterity; it was a matter of learning to do it properly—a full hysterectomy was no good at all. Workers who did not perform the extirpation completely might blame the method for their bad results. He could not make head or tail out of the foreign radium figures and preferred to disregard them until British figures were published in corroboration. The only definite standard of operability was to go for every case in which there was the slightest possibility of getting the growth out. He knew no way of preventing the urinary infection. Logically, if radium were to be used at all it should be on the early cases, since the late ones usually had glandular involvement. He had not cited pain as an important factor in determining the operability because in nine cases out of ten it meant that the growth had extended beyond the cervix and so was inoperable.

Prof. LOUISE MCILROY presented two short communications.

1. *Malignant Disease of Both Ovaries in a Girl of 18.*—The patient had had a severe attack of abdominal pain radiating from the right iliac fossa over the abdomen and had been getting thinner. On admission free fluid and two movable tumours were found, and the uterus was fixed. On operation the whole pelvic peritoneum was found densely studded with nodules which bled readily, and there was a tumour of each ovary; the appearance was characteristic of carcinoma. The tumours and all the ovarian tissue were removed: the patient recovered and had been seen several times since. She continued in good condition and menstruated regularly. The pelvis was still slightly tender, and the nodules in the peritoneum and some swelling around the uterus were still present. Pathologically, the tumours showed ambiguous characteristics, being probably a borderline growth between carcinoma and sarcoma.

2. *Endometrioma of the Ovary.*—The patient was a spinster aged 36, who complained of violent attacks of pain and sickness, which, she maintained, had no relation to the menstrual period. The right ovary was found on operation to be the size of a tangerine, cystic, and adherent. The left ovary and the tubes were healthy but congested. The right ovary was removed and the patient made a good recovery. The sections showed typical endometrial glandular tissue with no great invasion of the ovarian stroma.

The PRESIDENT referred to a patient with a similar apparently malignant growth who made a good recovery.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

AT a meeting of this Section held on Oct. 12th, Dr. GEORGE GRAHAM delivered his presidential address on the

TREATMENT OF GOUT.

He said that he had chosen this subject because there was an impression, often based on faulty diagnosis, that gout had become rare, because there had been great improvement in the treatment by drugs and because unpleasant symptoms sometimes followed the exhibition of cinchophen.

In *diagnosis* the presence of typical gouty attacks in other members of the family was a very valuable indication, as was also the history of the first attack, which was often typical although later ones were not. Gouty joints were nearly always asymmetrical, which dintinguished them from subacute infective arthritis. Tophi were helpful but inconstant. Since sodium biurate was deposited in the bones and was not opaque to X rays the skiagram in long-standing cases showed obvious clear areas, best seen in the small bones of the extremities. Identical changes were found in lupus pernio and similar ones in association with psoriasis. In old subacute infective arthritis there was a general loss of calcium, so that the shadow was not good, but there were no punched-out areas in it. The estimation of the uric acid in the blood might be a great help. It was raised in chronic nephritis with urea retention and in leukæmia, and might be high in people who had never had gout. Moreover, some patients with typical gout had no increase in blood uric acid, but on the whole a joint lesion combined with raised uric acid was probably gout. The uric acid content had been observed by Gudzent and Folin to increase when an attack was impending.

In *treatment of the acute attack* the first essential was rest for the affected limb, however slight the pain. Local applications such as lotio plumbi gave relief.

The best drug was colchicum taken in large doses as soon as the attack began (vinum ℥ xv.–xx. every four or eight hours, or colchicine 1/100–1/32 gr.). The mode of action of colchicum was not yet understood and it would not prevent attacks. Unpleasant symptoms resulting from its use varied from pain after meals, malaise, and headache to severe dyspepsia and diarrhœa. The cinchophen group was also of value.

In *prevention of the attack* diet played a great part. All foods containing much nucleo-protein must be avoided—gland-organs, beef, &c. The total protein must not exceed 60–80 g. daily (10–12 g. nitrogen). Sugar, tea, and coffee used to be forbidden, but were now usually permitted. Alcohol undoubtedly played some part in causing gout, and Widal and others had found that gouty patients often gave skin reactions to certain wines, especially red Burgundy. Port did not give skin reactions, although in this country it was considered, together with beer and champagne, to be a potent exciter of gout. General health must be maintained and all sources of sepsis removed. The most valuable preventive drug was cinchophen, a derivative of quinoline, sold under various proprietary names (atophan, agotan, phenoquin, quinophan). This caused a great increase in the output of uric acid, even in healthy persons; some thought it did this by increasing the purin metabolism, others by stimulating the kidney. Experiments showed that the uric acid began to reaccumulate in the blood as soon as the drug was stopped, although the output continued good. There was no evidence for increased formation, so the accumulation was probably derived from the sodium biurate deposited in the tissues. The experiments of Folin and of the speaker seemed to show that the extra uric acid excreted came first from the blood and tissues and then from the biurate stores in the body. Whatever the opinion held on the relationship of uric acid to gout, these stores could not be good for the patient. Another observation showed that cinchophen only caused an increase in output for the first two or three days, so that the best régime of administration was three-day periods with intervals. Most patients treated in this way had no more acute attacks, and their local condition improved immensely. Sodium salicylate and sodium benzoate also caused an increase in the excretion of uric acid, but 100 gr. a day of sodium salicylate produced noticeable effects on the patient, whereas cinchophen usually did not. Cinchophen also relieved the pain of acute rheumatism and infective arthritis, and its effect on the liver made it useful in catarrhal jaundice and icterus neonatorum. Its action in causing an increase in the volume of the bile, in the total dry solids, and in the pigment matter was only approached by that of desoxycholic acid.

Death following Cinchophen.—Several deaths had been recently reported from jaundice following a course of cinchophen. Investigation showed that the preparation and dosage had varied, but that in every case the drug had been given without intermissions. In some instances early signs of disturbance passed unnoticed. The speaker had tested the uric acid in the blood, the blood-sugar, and the liver function (lævulose test) in three patients who had been taking large quantities of cinchophen for some time, and proposed to examine its effects on normal people. One of his patients showed some sign of liver damage, and appeared to be taking more cinchophen than she really needed; the dose was, therefore, reduced to 15 gr. a day for two consecutive days in each week. He would be loth to give up the drug, since it gave such excellent results, but recommended that it be used mainly for gout, that it should never be given for more than four days without an intermission of at least four days, and that the blood uric acid should be estimated at intervals of six months and the dose reduced if the test showed a normal quantity. Possibly, also, a guide to delayed excretion might be given by testing the urine, which gave a green colour with weak hydrochloric acid in the presence of cinchophen.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

HEALTH ADMINISTRATION.

IN his presidential address delivered to the Society on Oct. 15th Dr. E. H. SNELL, medical officer of health for the city of Coventry, sketched the growth of health administration in this country, some of its anomalies and some of its obvious deficiencies. Health administration, he said, generally lagged behind preventive medicine, and was dependent, of course, on many other factors than those introduced by administrative officers. The Local Government Board, even when it became the department of Government concerned with the administration of the Public Health Act, found that its powers were of a limited character; it could only bring indirect pressure on a local authority that was slow in following its advice. One of the Board's most powerful levers, however, for moving local authorities, was by means of reports of inspectors. On the occurrence of an outbreak of illness or for various other excuses, an inspector was sent to the district to report on its sanitary administration; it was always a comparatively easy matter (especially with that wisdom which comes after an event) for an inspector to write a report reflecting on the negligence of the local council or its officers, or both. These reports were printed, and being of local interest found a good press in the local papers. It must be admitted that this system of reports worked well, though its effects were necessarily sporadic and often slow.

The latter part of Dr. Snell's address was devoted to the scope of health administration and the use of health propaganda.

Scope of Health Administration.

In the early days of the last half century, said Dr. Snell, efforts were directed mainly to the removal of gross nuisances causing noxious effluvia: the working of the Public Health Act specified the kind of nuisance a local authority could deal with, and its meaning had since been stretched to cover many conditions not originally contemplated by its promoters. The officer to carry out these duties was dubbed "inspector of nuisances," a name long since replaced by the title of "sanitary inspector." A healthy environment was sought by obtaining the proper removal of sewage, disposal of refuse, pure water-supply, healthy housing conditions, and so forth. It was possible to cleanse compulsorily a verminous house, but not the verminous person who infected the house. An early infringement of personal liberty in health matters was the penalty on exposing an infectious person in a public place and his compulsory removal to hospital. The local authority thus became responsible for his treatment. The Public Health Act gave local authorities power to build and maintain hospitals for the sick poor of their district on obtaining the sanction of the Local Government Board. The power was not limited to fever hospitals, but in practice sanction was not sought to construct any others, though for many years there had been a small municipal hospital for accidents at Barry, and more recently the Poor-law infirmary at Bradford had been converted into a municipal hospital.

In the course of time the close association of the cure of disease with its prevention became appreciated. The medical inspection of school-children was made compulsory 18 years ago, and it was inevitable that this should be followed by provision for treatment. The commonest ailments of children were provided for, and now in most areas some provision existed for dealing with eye and throat defects, dental disease, and certain skin diseases. Then certain of the more progressive of the local authorities started providing sanatorium beds for tuberculosis; a great fillip to this movement was given by the passing of the National Health Insurance Act of 1911, and sub-

sequently it became the duty of counties and county boroughs to make this provision both for insured and uninsured. Since then the *duty* has been imposed on these bodies to draw up schemes for the free treatment of venereal diseases. And the Maternity and Child Welfare Act of 1918 gave the *power* to these bodies to make provision for caring for the health and welfare of nursing and expectant mothers, and children below school age. It was curious to note that nothing in this Act was compulsory beyond the duty of forming a maternity and child welfare committee; that committee once formed need never meet, yet the Act would have been complied with. In practice, however, many if not most, authorities had already done much in this direction by the appointment of health visitors.

The cure and prevention of illness was so intimately related that, said Dr. Snell, it seemed inevitable that in the future the ordinary medical curriculum would have to cover both. State services relating to both were represented in the Ministry of Health. And even the method of payment of the insurance practitioner was such that the more successful he was in averting illness from his patients the less work he had to do. Much good work was possible from the practising medical profession if they would cultivate the spirit both of curative and preventive medicine. Curative medicine made a strong appeal to the charitable. Sympathy with the sufferer was natural. But this had the effect of making sanatoriums and hospitals the shop windows of public health, whereas they were merely the backwaters.

Health Propaganda.

It could not be said that nothing has hitherto been done by health authorities in regard to propaganda; but now, for the first time, this form of activity became statutorily one of the powers of local authorities. "It behoves us," said Dr. Snell, "as the responsible medical advisers of local authorities, to endeavour to see that such powers are used with due circumspection. The object in view is the prevention of illness. This can probably be best obtained by the avoidance of sensationalism, fads, and stunts. Let *our* advice be sound and founded on proved facts, or let it be nothing at all. We now know that the same methods of prevention cannot be applied to all diseases that can be classified as infectious. Isolation and disinfection were once regarded as the panacea for all infectious diseases. And probably most of us are familiar with circulars containing advice as to how to avoid this, that, or the other disease, the only value of which has been to the printer who printed them. It may appear harmless to advise good food, exercise, open air, and sanitary houses as assisting the combating of infection. But it is not altogether true. We now know that those children living under the least sanitary conditions are the least prone to contract diphtheria. Also such advice is founded on guesswork rather than on any evidence of its truth. The last published annual report of the Chief Medical Officer of the Ministry of Health casts doubt on its value in the case of influenza. After giving particulars concerning an outbreak of influenza in a school, it concludes by saying, 'The report is interesting as an illustration of our helplessness in controlling the spread of influenza, even in school, where the boys are given every care and attention, and where they live in what appear to be ideal hygienic conditions.'

"Take the case of encephalitis lethargica. Now that its signs, symptoms, and sequelæ are becoming recognised better, this disease looms largely on our horizon of fatal and malevolent maladies. But of its prevention we know practically nothing. A circular regarding its prevention would be as useful as one on the avoidance of thunderbolts. We have reason to believe that the regular evacuation of the contents of the large intestine is of enormous and even incalculable advantage to the individual. Let us say so. But it is not necessary for us to assert that cancer will be hereby avoided, or to endeavour to prescribe a diet which will eliminate all risks of this fatal malady. Such statements—for which there is not one iota of evidence—we can well leave to those voluntary societies who are willing to make them. I desire to draw a dividing line between responsibility and irresponsibility. We now have some definite and positive information regarding the obtaining of immunity to diphtheria and possibly also to scarlet fever. We have had even *more* positive evidence regarding the prevention of small-pox for over 100 years. We cannot claim any marked success regarding the propaganda work undertaken in that behalf. We have to recognise that there is an antagonism to propaganda work both passive and active. It is easy to arrange lectures; it is difficult to provide audiences. Even wireless broadcasting has its limits; educative lectures are turned off as relentlessly as most of us turn off jazz music."

Dr. Snell concluded with the regretful admission that our knowledge of preventive medicine is not sufficiently reflected and utilised in our administrative procedures. This was largely due to the want of exact knowledge among legislators, and the fact that political expediency was too often allowed to govern legislative enactments.

HUNTERIAN SOCIETY.

A MEETING of this Society was held on Oct. 18th, when Mr. MORTIMER WOOLF delivered his presidential address on

PAIN.

Although, he said, the fear of pain was often a deterrent, pain itself was the predominant symptom for which the majority of patients sought medical advice. Since the work of Hilton discussion had centred on the site of origin of pain, especially in the abdomen, the question being: Is visceral pain felt locally, or on the parietes of the body remote from its origin, or both? Mr. Wilfred Trotter considered that the pain nerves were those which ended or commenced in the tissues by means of nerve-fibres deprived of their neurilemma—i.e., that the ends of the nerves were uninsulated; he thought that arborisation of these uninsulated nerve-fibres formed an end-organ for the pain nerve. That a nerve termination of this nature was capable of producing pain could not be gainsaid; but, though pain could be produced by an uninsulated nerve-fibre, it need not follow that this was the only mechanism for the production of painful sensations; a blow on the ulnar nerve gave a very definite sensation of pain in the distribution of that nerve, although the area of the nerve stimulated was well insulated. These so-called "end-organs" for pain seemed to be in an entirely different category from those existing in connexion with the ordinary sensations such as touch, sight, and hearing. The paths of deep sensibility and localisation had been well worked out, but pain was different. It seemed almost universally connected with all sensations, and the President thought that it was nothing more nor less than a hyper-stimulation of a normal and specific sensation. Pinprick, heat, and light might all elicit pain if the stimulus was increased.

To the surgeon, he continued, there was one sensation of particular interest—namely, the sensation produced by the physiological contraction of muscles. The body was dependent on the tension of the muscles for a sense of the position of joints, and if this tension was excessive or abnormal, pain was produced owing to the hyperstimulation of a normal sensation. This seemed to be the explanation of Sir James Mackenzie's view that in acute abdominal disease the muscular layer was usually more hyperalgesic than the cutaneous tissues. In the viscero-motor reflex, where the abdominal muscles were held tense in order to protect an underlying diseased focus, it was, he thought, the tension of the muscles that made them painful. Pain after abdominal operation was largely muscular in origin, and, to a large degree, was situated

in the abdominal wall itself. The pro-peritoneal layer of fat was probably very sensitive, and to some extent this accounted for post-operative pain; but the muscular layer was the chief culprit. If this was true it was wise, if possible, not to sever or split the muscles but to draw them aside. If sutures were put into the aponeurotic sheaths rather than the muscles themselves, the patient seemed to suffer less pain.

The definition of pain as a hyperstimulation of normal sensation, continued the President, applied also to involuntary muscles. At the present time one school of thought believed that all abdominal pain was referred and could not be felt nor even produced in situ. Another school held that there was one form of abdominal pain produced and felt in situ, and caused by intravisceral changes of tension. Sensations were only present when they were of physiological use, and pain, heat, and cold all had a definite purposive physiology, whilst muscles conveyed the sensation of localisation. In hollow viscera there was no necessity for the sensations of heat, cold, touch, or, with very few exceptions, localisation; but there was a very real need that the intestines should be constantly kept informed of their state of tension. The purposive physiological sensation of the alimentary tract was the state of tension of its involuntary muscle, and when, for any reason, this became abnormal pain was produced locally, and, he believed, not uncommonly felt locally. It had been said that abdominal pain was due to tension on the mesentery, and that when the intestine dilated the mesenteries were pulled on, the nerves in them stimulated, and pain produced. The President very much doubted whether this was true. In colostomy the mesosigmoid was stretched but the operation was not painful. The pain caused by sequestration of a part of the gut was probably caused by the secretion of gas, which overstimulated the involuntary muscle surrounding it. This kind of pain, due to alteration of tension—e.g., in hernia or appendicitis—could often be localised fairly accurately, the patient placing his finger at the site of the lesion. On two occasions the President had been able to alter the intra-intestinal tension by inserting a plug, and on each occasion produced pain.

In conclusion, the President said that he believed that there was a form of abdominal pain produced and felt locally, and that abdominal pain could be produced by, at all events, one mechanism which made it comparable to pain elsewhere in the body—namely, by hyper-stimulation of a normal and specific sensation.

Discussion.

Dr. D. A. COLES inquired what was the most reliable sign of pain and how it was to be measured.

Dr. CAMPBELL MCCLURE pointed out that if an elastic bag in the rectum was rapidly inflated it caused pain referred to the sacral area and over the pubes. He thought that the facts did not support the idea that pain was an exaggeration of normal sensation.

Dr. J. A. RYLE considered that there was something in the view that pain represented an exaggeration of normal sensation, although this was contested by neurologists. It was a familiar experience that every grade of sensation existed in the stomach and bladder, for example. He believed that an increase in the tension of muscle-fibre—especially when rapid—or simply its failure to relax, was the cause of pain in a viscus. Distension, however, might exist without any pain, whilst the most severe biliary colic occurred without distension of the gall-bladder. He thought that the same argument applied to arterial pain—e.g., intermittent claudication—for which, he said, angina cruris would be a better name since the condition was analogous to angina pectoris and abdominis. From some cause—such as arterial disease, toxins, tobacco, or nervous unrest—the artery was unable to relax to adapt its posture. The mechanism was the same in all cases—an increase in visceral pressure with inability to relax. General practitioners, said Dr. Ryle, had a great opportunity for registering a series of observations on pain, and these would be of great diagnostic and practical importance. Such work could not be done in the laboratory or with animals. He believed that referred pains depended upon inflammatory changes, a different stimulus to that which caused visceral pain. The referred pains—e.g., those due to irritation of nerve-endings in a damaged organ—might persist for days after a visceral pain had subsided. It was important to observe also the gesture which accompanied visceral pain and which often localised it with great accuracy.

Dr. F. G. CROOKSHANK supported the theory that pain was an exaggeration of a normal stimulus. He said that dissociation of gas from the capillaries in the wall of a viscus certainly caused a visceral distension and was analogous to what happened in the swim-bladder of fishes.

Dr. E. P. POULTON cited the cornea, in which, he said, pain was the only sensation and was conveyed by uninsulated fibres. The pain of gastric ulcer was not located in the ulcer but in the viscus. He thought that burning pain signified that muscles were continuously on the stretch; the pain of angina was due partly to stretching of the heart muscle.

Dr. DAVID BARCROFT threw doubt on the existence of pain in many cases. It often persisted long after its cause had gone away.

Dr. HOWARD HUMPHRIS said that he had believed for many years that pain was due to pressure and that the best treatment was the relief of that pressure.

Dr. BRANSBY YULE said that he had often found that œsophageal pain was localised to the lesion. Muscle was often in a state of contraction; it was hypertetanic contraction that meant pain.

Dr. H. A. ELLIS said that he believed that pain was the overflow of central disturbance caused by local irritation.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Oct. 7th, when the President, Dr. E. RIVAZ HUNT, gave his presidential address on

Cholecystitis.

Dr. Hunt said that, according to Dr. Arthur Hurst, cholecystitis is the most common of all chronic abdominal disorders, probably occurring in at least 20 per cent. of all persons. It is probable that if practitioners were more definitely on the look-out for this condition many attacks of biliousness, indigestion, flatulence, or even of that much-abused term "influenza," could be attributed to cholecystitis. Gall-stones, which are found post mortem in at least 10 per cent. of all persons dying after the age of 20, are probably nearly always secondary to cholecystitis which may have resolved long before. He emphasised the importance of recognising this disease as a focus of chronic sepsis.

Dr. Hunt reviewed briefly the anatomy and physiology and pathology of the gall-bladder, and then described the symptomatology of cholecystitis. The onset was usually gradual, and as a rule there was little if any pyrexia, except at intervals when short attacks of a characteristic type might occur. Flatulent dyspepsia was the most prominent symptom, usually coming on immediately after meals, though when associated with reflex hyperchlorhydria it simulated the hunger-pain of duodenal ulcer, beginning two or more hours after a meal, and being then relieved by food, alkalis, or vomiting. Vomiting was uncommon, but nausea frequently present, and often some irregularity of the bowels. Jaundice was not a marked feature. The pain of cholecystitis was not infrequently a recurrent gastric pain, often worse at night; owing

to the close association of the centres in the spinal cord innervating the stomach, liver, and gall-bladder, the irritable focus in the cord might not be necessarily due to a gastric lesion, but might arise from disease of a neighbouring organ. Viscerosensory accompaniments of cholecystitis included superficial and deep soreness in the right upper gradient of the abdomen, right subscapular and interscapular pains, and tenderness over the middle dorsal spines and along the course of the eleventh right rib. In some cases of cholecystitis in which the gall-bladder was situated abnormally high up the inflammation of the gall-bladder might extend to the under surface of the diaphragm, giving rise to many of the signs and symptoms of subphrenic abscess, and might even masquerade as a pulmonary affection with slight dullness at the base of the right lung, râles, and slight pyrexia.

Dr. Hunt described various methods of demonstrating gall-bladder tenderness, and considered the differential diagnosis of an enlarged gall-bladder. He emphasised the importance of remembering that such newer methods should be considered as accessory only and not as short-cuts to diagnosis to the exclusion of the older and simpler methods. The treatment of acute cholecystitis was surgical. The treatment of chronic cholecystitis might be broadly divided into two classes: (1) Cases in which secondary complications, such as gall-stones or evidence of secondary septic troubles elsewhere are present. For these operation is the ideal course. (2) Cases in which secondary complications are absent or in which operation is declined or for some other reason is inadvisable. For these medical treatment may be first tried. An important point was the removal of any primary focus from which infection may be conveyed to the gall-bladder. Oral sepsis, tonsillitis, infection of the accessory nasal sinuses, chronic appendicitis, pelvic infections in women, and *Bacillus coli* infections must be looked for and treated. An attempt must be made to treat the gall-bladder infection by means of biliary antiseptics and provision of adequate drainage. Large doses of urotropine, combined with alkalis, given in the manner advocated by Dr. Hurst, may be used, or the same drug, combined with cholic acid, as in felamine tablets, is sometimes efficacious. Salicylates or aspirin in large and regular doses have been advocated. Magnesium sulphate in concentrated solution by the mouth promotes biliary drainage.

Dr. Hunt insisted on the importance of exercise, especially horse-riding and rowing. The diet should be carefully supervised so as to avoid or restrict those articles of food which contain or produce cholesterol.

Dr. Hunt concluded his paper by giving a brief description of cases illustrating points referred to.

DONCASTER INFIRMARY.—The Prince of Wales, on Oct. 12th, visited Doncaster primarily for the purpose of laying the foundation-stone of the new wards at the Royal Infirmary, which will be associated with the memory of Queen Alexandra. Since the infirmary was founded in 1868 the population has risen from 18,000 to 200,000. The number of beds in the new building will eventually be 600, and of the £110,000 immediately required for the new wards £48,000 has already been subscribed. It is hoped that much of the remaining sum needed will be contributed by the Miners' Association when work in the pits is resumed.

DONATIONS AND BEQUESTS.—Mr. Frederick Lewis Brandon Siddons, of Hanger Hill, near Ealing, and formerly of Calcutta, besides other bequests left £700 each to King Edward VII. Hospital, Ealing, St. Dunstan's Hostel for the Blind, the Hospital for Sick Children, Great Ormond-street; to Bedford Grammar School for the benefit of the school, and £700 for the upkeep of the panel in the school chapel in memory of his three sons.—King Edward's Hospital Fund for London has received a gift of £10,000 sent by Mr. Albert W. Searle.—Under the will of the late Mr. A. B. Bosher, of Tunbridge Wells, some £265,000 will be divided between the Lord Mayor and Corporation of London and the Mayor and Corporation of Sheffield for allocation to hospital charities within their respective areas.

Reviews and Notices of Books.

EVOLUTION.

Nomogenesis or Evolution determined by Law. By LEO S. BERG, Chief of the Bureau of Applied Ichthyology, and Professor of Geography in the University of Leningrad. With an introduction by D'ARCY THOMPSON. Translated by J. N. ROSTOVTSOW. London: Constable and Co. 1926. Pp. 477. 28*s*.

LUCK, cunning or law? To Darwin it was the good fortune of happening on a variant which suited the surroundings and had a survival value in getting through the sieve of natural selection. To Samuel Butler it was the ingenuity of learning what had happened to one's ancestors and storing it in an unconscious memory. To Dr. Berg the live world in its course of evolution is carrying out a predetermined plan controlled by laws as definite as those which keep the developing individual in the proper path. He brings abundant experience as a naturalist and an extraordinary wealth of learning to enforce his arguments for orthogenesis on the one hand, and for the direct influence of environment on the other. An evolutionary series is comparable to an individual—simple and small to begin with, growing progressively larger and more complex as it progresses, and finally reaching extinction in some gigantic gerontic form. Palæontology apparently contains abundant examples of the process, and if we interpret them as evidence of predestined courses, inherent in each animal and plant, it is obvious that our common views on evolution need modification. So, too, Dr. Berg attributes the similarity of animals of diverse groups living in the same environment to something deeper than chance variation. He is, in short, rather heretical, and he has written a most refreshing independent attempt to make out just where we stand in evolutionary matters. Prof. D'Arcy Thompson's introduction is delightful.

GOULD'S MEDICAL DICTIONARY.

By G. M. GOULD, A.M., M.D. Edited by R. J. E. SCOTT, M.A., B.C.L., M.D. London: H. K. Lewis and Co., Ltd. 1926. With illustrations. Pp. xi. + 1398. 30*s*.

THE first of Dr. George M. Gould's dictionaries was published in 1890, and in various forms they have had a large circulation ever since. The latest appears under the new title of "Gould's Medical Dictionary," edited by Dr. R. J. E. Scott, and has definitions of some 76,000 words. In a preface to one of his earlier volumes Dr. Gould referred to the medical vocabulary as a "strange hodge-podge of the medical language of two or more thousand years and of many special national tongues, in mechanic, not chemic mixture, with modern sounds and symbols, the whole amazingly heterogeneous and cacophonous," and it is alarming to find that the reviser of this dictionary has had to add another 5000 "legitimate new terms" to his collection. The lexicographer's position is difficult because it is his duty to interpret all the words which his readers may come across, and he has little chance of purifying them in the fire of his philological enthusiasm. Before his comments can appear the worst words are already on a thousand lips, and though the mortality amongst scientific terms is high their deaths are generally caused only by overcrowding due to the delivery of others worse than themselves. Dr. Scott remarks incidentally that no name should be changed simply because it is inappropriate; its suitability should be canvassed thoroughly before it is applied—a custom which would save much of the confusion of modern medical terminology. Only thus can be checked the growth of what Dr. Gould rightly calls the "huge and unassimilated philologic mass, many times greater than it should be, the despair of medical students and of the makers of dictionaries."

Attention is drawn to the steadily increasing use of proper names, legitimate and otherwise. Where these

are attached, for instance, to operations which have represented a real advance in method, their employment may be justified and of historical value. But the multitude of names used in medicine is so great that it is hopeless to try to remember more than a few.

This dictionary is unusual in giving pictures of many medical authorities of various centuries and countries, a custom which will be acceptable to some readers, but not to others. It is well produced and not very large considering the immense amount of information given. But a glance down the pages, filled with such words as "archocolpocystosyrinx" (more commonly known as recto-vesico-vaginal fistula), may well make the reader wish for an international Academy, which should quietly take such useless words away and give them decent burial. It ought to be possible in this way to reduce the medical vocabulary by half, and no one would be more thankful than the compilers of dictionaries.

THE HOUSE SURGEON'S VADE MECUM.

Second edition. By RUSSELL HOWARD, C.B.E., M.B., M.S. Lond., F.R.C.S. Eng., Surgeon to the London Hospital; and ALAN PERRY, M.B., M.S. Lond., F.R.C.S. Eng., Assistant Surgeon to the Hospital. Revised and enlarged. London: Edward Arnold and Co. 1926. Pp. 520. 12*s.* 6*d.*

IN the preparation of the second edition of his popular book, which first appeared in 1911, Mr. Russell Howard has had the help of Mr. Alan Perry. The book has been extensively revised. Among other improvements is the introduction of many excellent photographs illustrating various splints and appliances for the treatment of fractures. The chapter on anæsthetics has been revised by Dr. Ashley Daly and a very useful medico-legal chapter has been brought up to date; throughout this chapter the use of the term "municipal hospital" for rate-aided institutions prevents confusion. This handbook should prove useful not only to dressers and residents in hospitals, but also to those practitioners who have not had the advantage of holding the post of house surgeon in a big hospital.

INTESTINAL INFECTIONS.

Les Enteropathies Microbiennes. By Prof. G. SANARELLI, Directeur de l'Institut d'Hygiène de l'Université de Rome. Paris: Masson et Cie. 1926. Pp. 227. 3*s.* 4*d.*

IN this suggestive volume Prof. Sanarelli summarises the results of a lifetime of bacteriological study. To him perhaps more than to anyone else we owe the modern conception of typhoid infections as general diseases with elective localisation of the organisms in the small intestine rather than as primary infections of the small intestines with general symptoms. As he himself expresses it, "typhoid fever is no more a disease of the intestine than small-pox is a skin disease." These views have to some extent been popularised by the investigations of Besredka and his pupils, and some part of the present volume is occupied by discussions of priority of investigation, but the bulk of the work deals with the general pathology of typhoid, cholera, and anthrax, and the reader will here find a store of interesting records. An excellent bibliography is included.

HÆMATOLOGY.

Pernicious Anæmia, Leucæmia, and Aplastic Anæmia. An Investigation from the Comparative Pathology and Embryological Point of View. By J. P. MCGOWAN, M.A., M.D., Pathologist to the Rowett Research Institute, Aberdeen. London: H. K. Lewis and Co. 1926. With 12 illustrations. Pp. 116. 7*s.* 6*d.*

STARTING from his investigations of the leucosis of fowls, on which Ellermann and others have written a good deal, and of the curious anæmia of suckling pigs, which may be cured by adding iron to the diet of the mother, Dr. McGowan has added another to the long list of books which try to make out the genealogy and relationships of the fascinating cells of the blood and bone-marrow. This central idea is that the stem cells from which red cells and leucocytes arise may be stimulated in a variety of ways so that elementary forms of one grade or another appear in the marrow in abnormal numbers and overflow into the circulating blood. In this way he finds a common basis for perversions such as pernicious anæmia and leukæmia which in their fully developed forms appear as sufficiently distinct diseases. Dr. McGowan's discussion is full of interest and his facts mostly come from an abundant personal experience. His propositions and conclusions are not always proved beyond doubt; but, which is perhaps better, they are put forward in a vigorous and stimulating way and will give his readers some fresh ideas.

PRACTICAL ULTRA-VIOLET LIGHT THERAPY.

A Handbook for the Use of Medical Practitioners. By T. CLYDE MCKENZIE, M.B., Ch.B., and A. A. KING. London: Ernest Benn. 1926. Pp. 108. 6*s.*

THIS excellent little book has evidently been written by those who have themselves studied the subject and who know how to hand on really useful information. It is not a treatise but a practical manual written for doctors who want to use this form of therapy. Certain parts of the subject, as, for instance, the technique of open arc lamps, are hardly touched; this is perhaps a pity, but if it is assumed from the outset that the scope of the book is limited to the authors' own experiences, the reader will suffer no disappointment and will find much useful information on technique and on treatment. They will also find that the authors have a theory to account for the action of ultra-violet radiation on the body; they suggest that it acts upon and through the nervous system. They make out a very good case for their theory that these rays have an effect upon the nervous system, but we are no more inclined to believe that the whole sequelæ to irradiation arise in this way than we are to accept the photo-electric theory or that which imputes to the blood stream the chief part in these complicated processes. Perhaps hardly enough facts are yet known to warrant adhesion to any single theory; but that is no reason to refrain from formulating suggestions, for these point to further experiment, which, in turn, may reveal the weaknesses of the theories which inspired them, while stimulating progress in another direction.

"OVER FRAYS."

An Original House for Practical People. By CLARICE H. M. NAYLOR-DAVIDSON. Uxbridge: Printed privately for the author. 1926. With photographs, plans, and other illustrations by the author. Pp. 66. 21*s.*

Mrs. Davidson, the wife of a medical man who has retired from practice, being impressed with the necessity of having a house which, while eminently sanitary, shall be capable of being run without domestic assistance, describes in this book such a house which she herself has designed. In construction it is a brick parallelogram 68 ft. by 24 ft., and has two stories and an attic in the roof. The long sides of the parallelogram face nearly east and west—i.e., slightly south of east and north of west. All the sitting-rooms have windows opposite one another on the S.E. and N.W. sides respectively and so has one bedroom. The chief feature of the house is the kitchen which opens straight out of the dining-room with sliding doors in between. The cooking-stove is a gas stove, also fitted with a hot-water circulator, and besides its own flue there is a cast iron canopy over the stove fitted with a ventilator opening into the chimney flue, all smell being thus carried away. In all the rooms the walls meet the floor with a curved skirting, making dust easily removable. The fireplaces in all the rooms are arranged for gas, but they are constructed in two halves, so that by a swinging arrangement on either side an ordinary grate

is exposed which can be used for wood or coal. The walls of the house are double, with an air space between, thus avoiding damp, and the house is warmed by hot-water radiators. Cupboards built into the walls are plentiful and all bedrooms are fitted with wash-hand basins fixed and supplied with hot and cold water from taps. A small greenhouse in which is the hot-water cylinder opens out of the kitchen at one end of the house, and at the other end the garage adjoins the drawing-room. In every way the house bears out its designer's description as being one for practical people.

BOOKS FOR NURSES.

Hints to Probationer Nurses in Mental Hospitals. Second edition. By RICHARD EAGER, O.B.E., M.D. Aberd. London: H. K. Lewis and Co. 1926. Pp. 88. 1*s.* 6*d.*

THIS little book fills a real need and will appeal to the earnest probationer who seeks practical guidance and theoretical interest in mental nursing. It fulfils admirably its aim—that of putting in clear and simple language the essential points a nurse should know immediately on entering a mental hospital; it gives such an account of the mind, its working, and manifestations in conduct as will enable her to perform her duties with an intelligent understanding of mental disorder. Of the 88 pages 38 are given to practical hints, while 50 deal with psychology; an increase of the first part would be an improvement in order that rudimentary facts about the handling of patients might be more fully discussed. The book begins admirably with the essential maxim: "Never take offence at a patient," and the last maxim reads: "Never let a patient suffer because he is unable to complain." The rules given are wholly suited to the probationer. The section on ward duties might usefully lay more stress upon the duties peculiar to the probationer. Tube-feeding, catheterisation, the giving of enemata, &c., will be practised and taught by a senior nurse; but it is often the probationer's duty to learn to persuade her patients to eat by understanding their fears or other reasons for refusal, and to report on the excretory functions, watching for a distended bladder, or for constipation, preventing needless incontinence by timely attention, and avoiding discomfort by prompt cleansing of a soiled bed. It may be noted that the rule about "seclusion" has now been altered. A valuable addition would be a section showing how large a part is played in treatment by the hospital environment in general, and by the relations between staff and patients; the nurse cannot learn too soon her ability to help in treatment that every word and gesture may have an effect on the patient, even when apparently unnoticed.

The book is of handy size, and every junior nurse should enter on her work with it in her pocket and study it thoroughly in her leisure hours.

A Handbook for Nurses. Seventh edition, revised. By J. K. WATSON, M.D. Edin., Capt. R.A.M.C. London: Faber and Gwyer. 1926. Pp. 802. 7*s.* 6*d.*

Dr. Watson's handbook has again been revised and brought up to date. The chapter on digestion and dietetics has been enlarged, the Schick test is well described in the section on diphtheria, and new sections are devoted to the use of insulin in diabetes and to the discussion of anaphylaxis. Nurses will find this a useful and well-illustrated text-book at a reasonable price.

The Nursing of Diseases of the Nose, Ear, and Throat. By MICHAEL VLASTO, M.B., B.S., F.R.C.S., Assistant Surgeon to Ear, Nose and Throat Department, West London Hospital. London: Faber and Gwyer, Ltd. 1926. Pp. 229. 6*s.*

THIS little volume presents an adequate review of diseases of the nose, ear, and throat from the nurse's point of view. It begins with a useful description of the out-patient department and of the nurse's duties there, and goes on to explain in simple language the commoner diseases and operations, lists of the instruments necessary for these being provided. More stress might have been laid on the importance of keeping a child well over on the side after an operation for removal of tonsils and adenoids, thus making sure that hæmorrhage is not going on, the blood being swallowed. Some manipulations, such as syringing the nose and fauces and the contra-indications for the first-named process might well have been more fully discussed. The book is clearly written and well illustrated, and will be useful to nurses.

JOURNALS.

BRITISH JOURNAL OF CHILDREN'S DISEASES. Vol. XXIII. July–September.—In a paper on the diagnosis of cerebellar tumours in children Dr. Macdonald Critchley states that the four main symptoms of cerebellar growths in children are in order of frequency—vomiting, headache, disorders of equilibration, and visual disturbances. Another occasional symptom is the so-called "cerebellar fit," which is preceded by no aura or premonitory symptoms, but consists in generalised tonic rigidity of the entire musculature. The physical signs may be classified into those due to actual cerebellar disturbance, such as atonia, ataxia, and asthenia, those due to pressure upon adjacent structures, such as squint and paralysis of cranial nerves, and those due to generalised hydrocephalus, which include enlargement of the cranium and separation of the sutures. Tumours primarily pontine may be distinguished from tumours primarily cerebellar by the late occurrence of drowsiness, by the absence of dysphagia until a very late stage, by the early appearance and rapid development of papilloedema, the late occurrence of cranial nerve palsies and spasticity, and the rarity of sensory loss.—Dr. T. Brushfield and Dr. W. Wyatt contribute the first part of a paper based on a study of 16 cases, dealing with the clinical aspects of epiloia, a term suggested by Sherlock to describe the syndrome of mental deficiency, epileptic fits, adenoma sebaceum, nodular sclerosis of the cerebral cortex, and tumours of the kidney and other organs. Three illustrative cases, accompanied by some striking photographs, are recorded.—Dr. F. Parkes Weber deals with the question of infantilism as a complication of congenital hæmolytic (acholuric) jaundice or anæmia, with a record of personal cases and a review of the literature.—Dr. Parkes Weber also contributes a note on the neoplasm and infection theories of leukæmia and aleukæmic lymphadenoses.—Dr. G. W. Ronaldson reports a case of measles at confinement with a subsequent modified attack in the child. The term "congenital measles" was not applicable to this case as the baby did not develop any symptoms until 15 days after birth. Extraneous sources of infection could be excluded in the child's case, as the patients were treated in a two-bedded room in an isolation block, where there were no other cases of measles. Ronaldson attributes the somewhat prolonged period of incubation and the rudimentary character of the disease to the immunising effects of the maternal milk.—Dr. S. Erdheim contributes a paper entitled Second Attacks of Measles. An account of two cases, which presents the following points of interest: (1) The subjects were brothers. A familial predisposition to recurrence of measles has been noted by other observers. (2) The interval between the attacks was almost exactly one year in each case. (3) The second attack of one child was more severe than his first attack. This is contrary to the generally accepted opinion that the second attack is milder than the first, as was the case in the other child. (4) There was nothing anomalous or characteristic in the clinical pictures of the second attacks.—Dr. Erdheim also reports an example of "illness of infection" in measles, in which the primary illness lasted two or three days and commenced 13 days before the appearance of the eruption.—The abstracts from current literature are devoted to diseases of the new-born.

THE LANCET.

LONDON: SATURDAY, OCTOBER 23, 1926.

RESEARCH IN GENERAL PRACTICE.

GENERAL practitioners are often reminded that they are the backbone of the profession. The praise, of course, is gratifying; but it does not prevent them wondering how much work is to be left for them to do. Public health, tuberculosis, infant welfare, and venereal disease have one by one been "rescued"—as one writer is pleased to put it—from the morass of general practice, and it has lately been suggested that midwifery should also be taken out of this supposedly septic environment. The family doctor, in fact, is finding his practice less and less general every day, even when his panel duties are taken into account, and it is not surprising that sometimes he dislikes the change, since it is in varied responsibility well discharged that doctors must find their chief satisfaction. Some alteration of the work, however, was inevitable. The everyday demands of general practice are so great as to make it impossible for any but exceptional men to keep an up-to-date knowledge of more than a few of the special branches of medicine. The work has to be done under difficulties, for constant interruption, or the fear of it, is of all things most antagonistic to serious reading. If the practitioner is trying to hold his own against all the conflicting currents of medical progress, how can he find time to strike out in a particular direction of his own? How can he undertake original investigation or follow up a line of thought? Lack of leisure, intellectual isolation, and inadequate facilities conspire to prevent him from collecting information and recording his ideas, and there is no doubt that scientific medicine has thus suffered a considerable loss, for it is in general practice that the early stages of disease and the late results of treatment may best be studied. As has often been pointed out, there is in general practice a great opportunity for research—an opportunity largely disregarded. It is only the family doctor who can follow the history of individuals during 30 or 40 years, summing up the hereditary and prenatal influences, the effects of wrong habits in childhood, the final results of infantile and youthful ailments, and the first causes of premature decay or death. To him also come the minor ailments—the colds, catarrhal fevers, and influenzas, the mild exanthems, the medical dyspepsias, and septic conditions such as boils and styes and carbuncles; he has a better chance than any surgeon to judge of the after-effects of operations for such conditions as cancer, gastric ulcer, hæmorrhoids, or varicose veins. Obviously it must be in the interests of science that the general practitioner who has been given an inquiring mind should be encouraged to make the most of his many opportunities, and it only remains to consider how this can best be done.

A possible solution to the problem has recently been propounded by Miss M. FORRESTER-BROWN in an article of considerable interest.[1] For that fundamental hindrance to research, lack of particular knowledge, she sees but one remedy—specialisation. Although the practitioner is to retain cases of acute disease or trivial complaints beneath his own care, so as to keep in touch with the conditions of their homes and save himself from too narrow an outlook, "it should be provided," says Miss FORRESTER-BROWN, "that every chronic case of more than a few weeks' duration would be automatically grouped under a practitioner specially experienced in such disabilities," who "would have at his back the consultant staff of some large institution, and would be the regular attendant, both at their homes and at the clinic, of large numbers of chronic cases of the particular group, which would give him a wide experience of all the phases, such as is unobtainable by specialists under present conditions." "Once the public are educated to demand specialisation," she remarks, "they will not long permit any doctor to treat a chronic case outside his own branch"; but she does not say how long it will take to educate them, and it is on the ground of reasonable prejudice the scheme would be wrecked. Most patients would prefer to go to a doctor whom they know and trust rather than to a man with special knowledge whom they do not know and would fail to see the coöperation between the general and special adviser implied in the design. It is hard to imagine, moreover, that a medical man would readily recommend an old and devoted patient whom he had attended all her life and in all her confinements to go to his local rival—of whom, perhaps, they both disapproved—merely because she had a patch of eczema and the rival was the skin authority for the locality. The effect of such extensive specialisation on the work of the profession is not easy to imagine, but perhaps we may learn from the results of similar differentiation in the infantry towards the end of the war. Company parades were reduced to a handful, as nearly everyone was away on "specialist" courses, and one man was heard to remark pityingly to another: "Of course, you wouldn't understand why I don't go on parade, you being an infantryman. Well I'm a specialist."

The remuneration of general practice is such that to make a competence a doctor must work hard and to make a good income he must overwork grossly or be able in his own practice to grasp all the advantages to science as well as to routine by coöperative business management. Original work involves a loss of leisure or money by one who usually has neither to spare. There are some, however, who would not be deterred from investigation by thought of time or money but are, nevertheless, discouraged by two other factors mentioned above—isolation and lack of facilities. The number of cases of any one condition that a general practitioner may meet in a given time is small and he is properly shy of publishing inconclusive results. If he knew that others were working on the same problems and that results could be published together, he would be less reluctant to undertake research. Most diseases, however, nowadays require some laboratory work for their investigation, and the general practitioner has neither time, knowledge, nor apparatus for carrying this out. The outline of a scheme for overcoming these difficulties was put forward not long ago by Dr. N. M. GOODMAN. He suggests[2] that each of the great teaching hospitals should enrol a number of its old students, now in general practice, who would be able and willing to undertake research. An expert at the hospital would be in charge and would coördinate the work, and the practitioners would be recompensed for their loss of

[1] Practitioner, September, 1926.

[2] THE LANCET, 1926, i., 735.

time by a system of retaining fees. The hospital would carry out any laboratory work needed, and the director would supply references to the literature and undertake experiments suggested. From time to time he would report progress and he would be responsible for collating results and arranging their publication. The working of this scheme may be illustrated by an example. Whilst many practitioners in conducting labour apply forceps as soon as the head is in the vagina, others consider that everything should be left to Nature where possible and that the forceps should never be applied in a normal delivery. An honest report by a group of 20 to 30 general practitioners on the late results of both methods might throw valuable light on a question which remains unnecessarily controversial. We should be glad to see Dr. GOODMAN'S scheme adopted as an experiment by some teaching centre, but it must be remembered that the collation of information received from only half a dozen independent workers may present great difficulties, and that in general practice, as elsewhere, there are only a few men who are likely to have the due bent for research. Although the public has come to regard any and all research work with a sort of mystical respect, the profession ought not fall into that error, remembering that the only real justification of such work is its success—whether positive, negative, or merely catalytic. The ideal organisation is that which places tools in the hands of the man who can use them—and into the hands of nobody else.

ACCIDENTS AND HOSPITALS.

THE after-history of broken bones and other accidental injuries has long exercised the minds of surgeons who have followed up these cases to their final issue. Nearly 20 years ago the late Mr. CLINTON DENT devoted an annual oration at the Medical Society of London to an account of his personal experience, which was that a fracture of the leg, owing to its after-effects, was from the point of view of wage-earning capacity a very serious injury. Such a fracture, under the most favourable circumstances, kept a man from following efficiently an active employment for six months, and it constantly happened—the words are Mr. DENT'S own—that these patients broke down on resuming work and remained permanently incapable of following it, as a direct consequence of the injury. Simple fractures, as they are ineptly called, excited but little interest in the hospital practice of Mr. DENT'S time, and were hardly as closely supervised by the visiting surgeon as cases of more pronounced clinical value. On another occasion Mr. DENT stated that in his long experience as a police surgeon he had never seen a case of Pott's fracture, treated at a general hospital, so completely restored as to permit of a constable's return to active duty. What was true of London 20 years ago seems to have its more recent parallel in other cities. Our Vienna correspondent recently set out the reason for the foundation of an accident hospital in Vienna; it was because the Viennese insurance societies came to realise that they were paying enormous sums just for the want of immediate and adequate aid for the victims of accidents. So they decided to provide a number of beds in charge of a specially trained staff prepared to investigate every fracture and to apply all the resources of orthopædic surgery and mechanotherapy. The statement that this Vienna accident hospital in its first year saved the insurance societies something in the neighbourhood of £18,000 is astonishing enough, but should be read in the light of Mr. WARREN LOW'S remark (see p. 849) that under the present hospital system many patients fail to make economic use of function which has actually been restored.

The treatment of accidents in hospitals raises many difficult questions, some of them new and urgent. Before the era of the motor-car the receiving officer of a large general hospital might be embarrassed by a run of Pott's fractures on the first snowy evening of the year: to-day a fine Sunday evening may overwhelm any cottage hospital with a glut of complicated injuries. And it does not follow that the routine appropriate for the one institution is ideal for the other. In most general hospitals accident cases are under the care of the resident medical staff with only the supervision deemed needful from the visiting surgeons. To collect the cases under one control and in one department would no doubt make for convenience, but would tend to withdraw these instructive cases from the view of the student and from the care of those junior men in whose training the direct responsibility for their treatment plays such an important part. The middle course might be taken of centralising in one department all accident cases, serious and trivial alike, with wards and treatment rooms, under the charge of a whole-time resident of the standing of a registrar. Accidents would be admitted in normal rotation under the nominal charge of members of the visiting staff, and those members who were interested in these cases would visit the department, accept responsibility for the cases under their names, and use them for purposes of teaching. The director would be responsible for the organisation of the department and for the treatment of all cases not specially reserved, and he would give special courses of instruction. Unless some such plan as this is adopted the treatment of injuries is likely to be relegated to a special department and will cease to be a part of general surgery, and anyone can see that this would be a regrettable position for the public. The cost of establishing such a department would no doubt be considerable, but this might well be defrayed by the insurance companies.

At the present time, as Sir JOHN PAGET has recently insisted, it is a grave scandal that these companies contribute nothing towards the treatment of their injured clients in hospital, although in cases where they are treated privately the cost of medical treatment is a part of the accident policy. Moreover, their present attitude to the hospitals is short-sighted since the funds of insurance companies must suffer materially from inefficient treatment, even if not to the extent which they were found to do in Vienna. Both equity and self-interest alike should lead the companies to support an accident department in every hospital with such an open hand that the other funds needed for the work could be found readily; such an arrangement would probably be more satisfactory than to meet the need by the erection of special clinics, independent of general hospitals, where the contributing companies might seek to minimise disabilities and to discharge patients as fit for work long before this was the case. On the other hand, as Mr. LOW points out, after-care centres should be useful in helping the victims of injuries to overcome diffidence in their recovered powers. A lax system may prevail at some general hospitals, and may tend to swell the numbers under treatment by the presence of some who would be better back at work, and in this connexion it would be interesting to hear the views of patients on the rigour of the Vienna system.

AN ANTHROPOLOGIST ON JOHN BULL.

THE first social evening of the session was held at the Royal Society of Medicine on Monday last, when a very large company of Fellows and guests were received by Sir JAMES BERRY, the President, and Lady BERRY. The speaker of the evening was Sir ARTHUR KEITH, who entitled his witty and entertaining address John Bull: a Study in Anthropology. He took as his text the familiar John Bull of BERNARD PARTRIDGE, remarking that not only was the famous *Punch* artist the son of one anatomist and father of another, but also he had drawn John's features with peculiar racial and anatomical insight. The artist, he said, could convey with his pencil that John is bluff, honest, kind-hearted, and generous, with a hearty contempt for everything savouring of pretence, meanness, or dishonesty. The anthropologist with his craniometer, on the other hand, had as yet found no precise method of recording or measuring these characteristics. John is dolichocephalic, but has rather a massive brain. His face shows none of the sharpness and angularity of certain other British types. TENNIEL'S John Bull was an old, old man, but since then he appeared to have grown gradually younger. In the year 1712 the Scotsman, Dr. JOHN ARBUTHNOT, in his "History of John Bull," described the character he had selected as the essential Englishman and to whom he had given this name.

"In the main," he said, "John Bull was an honest, plain-dealing fellow, choleric, bold, and of a very inconstant temper; he dreaded not Lewis Baboon (France) either at backsword, single falchion, or cudgel play; but then he was apt to quarrel with his best friends, especially if they pretended to govern him; if you flattered him, you might lead him like a child. John's temper depended very much upon the air; his spirits rose and fell with the weather-glass. John was quick and understood his business very well; but no man alive was more careless in looking into his accounts, or more cheated by partners, apprentices, and servants. This was occasioned by being a boon companion, loving his bottle and his diversions, for, to say truth, no man kept a better house than John nor spent his money more generously."

A second Scotsman, JAMES GILLRAY, an audacious and brutal caricaturist, developed John Bull from a loose-jowled, putty-faced farm labourer, as he had drawn him, into a typical country publican. Although many of GILLRAY'S drawings showed a very different conception of John Bull from those of ARBUTHNOT and TENNIEL, yet some of them certainly foreshadowed *Punch's* John Bull. The lecturer demonstrated with photographs of English public men how rare in fact was this "typical Englishman," and suggested that he was met more often in Yorkshire than elsewhere.

Neither in face nor colouring was John Bull, he said, a true Saxon, and to find his prototype it was necessary to go far back in our island story to certain immigrants early in the second millennium B.C. These ancient invaders appeared to have originated beyond the Caucasus, where big noses and round heads still abound, and their blood can be traced, said the speaker, chiefly among our landed, professional and business men. While the typical John Bull is not uncommon in Ireland, he is almost unknown in Scotland and on the continent. Hostile French cartoonists gave John Bull a lantern jaw, loose lips, a rabbit mouth, defective chin, and sharp nose, and this caricature accurately represents the anthropological changes which the faces of the British people are most apt to undergo. German artists in the stress of war picked out the prognathous jaw, ample mouth, shrunken snub nose, and cruel countenance occasionally found among prosperous and unprincipled city men. Despite these attempts to crystallise the essentials of English character in one symbolic figure, the supply of individual types remains inexhaustible, as artists and novelists reveal every week, and before anthropologists lies the tremendous task of reducing this complexity to a scientific unity.

Among the interesting exhibits in the library of the Royal Society of Medicine were a collection of X ray photographs and engravings of medical men.

Annotations.

"Ne quid nimis."

THE BEST USE OF FEVER BEDS.

AT its meeting last week the Metropolitan Asylums Board decided on a change of policy in the allocation of beds in hospitals to the various prevalent infectious diseases. Of the total 4185 beds then occupied in M.A.B. hospitals, 2285 contained patients suffering from diphtheria, 1527 from scarlet fever, 194 from whooping-cough, 106 from enteric fever, 34 from measles, 21 from puerperal fever, and 18 from other diseases; the beds allotted in special hospitals to ophthalmia, marasmus, small pox, tuberculosis, post-encephalitic and convalescent cases are not included in these figures, which, as will be seen, bear no relation to the relative fatality of the various infections. Out of every million people living in London during the last 15 years, 251 have died annually from measles, and only 42 from scarlet fever, the mortality-rate per cent. in the Board's hospitals during the same period being 10·6 for measles and 1·5 for scarlet fever. When the Board decided at the beginning of this period—that is, in 1910—to receive measles and whooping-cough it was with the definite intention of restricting their admission to the number of beds available after the prior claims of scarlet fever and diphtheria had been satisfied. As far as diphtheria is concerned, the claim remains paramount, but so mild has been the type of scarlet fever in London during recent years that the Board believe the large majority of these cases would have recovered whatever the conditions under which they were treated. Moreover, the value of isolation in the treatment of scarlet fever is by no means established, although it is possible that the more severe complications, such as nephritis and otitis media, may occur less often in hospital than in patients treated at home. Even under non-epidemic conditions it would be impracticable to isolate all the cases of scarlet fever, diphtheria, and measles in the metropolis, and to do so would require enormous expenditure on new buildings during an epidemic period, when the number of measles cases may run up to 100,000 in the year; but the ratepayer may quite properly inquire whether he is well-served by an expenditure of 1*s.* 4*d.* per head per annum on the simple isolation of all cases of scarlet fever, when the case-mortality of this disease has gone down from 10 per cent. in the 'seventies to less than 1 per cent. at the present time. Having such considerations as this in view, the Metropolitan Asylums Board, with the approval of the Ministry of Health and the local authorities concerned, have decided to modify the present scheme of allocation of beds, so as to give measles a considerable proportion of the beds now allocated to scarlet fever. As soon as the one competes against the other for admission, the borough medical officer of health will select cases of either in accordance with the necessities and home conditions of the individual case. This decision fulfils a principle, already enunciated in these columns, that while no sanitary authority should or could undertake the isolation of all infectious disease in its area, its utility would be greatly enhanced if it could undertake to deal with selected cases of all kinds, putting in the forefront those from institutions and from poor homes, the new cases in a locality and all those of severe type. It might be feared that such a re-allocation would increase the difficulties of preventing cross-infection, but recent experience of bed-isolation at Fazakerley and other places shows that this problem may not be as difficult of solution as was once supposed.

SIR THOMAS HORDER'S ADDRESS.

THROUGH an inadvertence in the publishing department of THE LANCET an advance copy of our issue last week became prematurely accessible to the public. As a result an address by Sir Thomas Horder was reproduced in the lay press on Thursday evening, in contravention of promises made by the British Medical Association. We deeply regret the occurrence. The incriminated copy of the paper was sold over the counter through a direct breach of rules, which we believe never before to have been broken. The fact that the breach was innocent does not, unfortunately, remove either the mischief done or the chances of misinterpretation.

THE HEAT PRODUCTION OF NERVE.

PHYSIOLOGY, in the guise of the "handmaid to medicine," often receives the lip-service of the medical profession. Yet little or no notice has been taken in medical journals of one of the most remarkable achievements in experimental physiology that has ever been recorded.[1] Prof. A. V. Hill, of University College, London, is already well known for his investigations of heat production in muscle, a piece of work which earned for him the Nobel Prize. He has now followed this up, after years of patient experimenting, by actually measuring the heat produced in a nerve during the conduction of a nervous impulse. It was long believed by many physiologists that the nerve-fibre acted as a passive conductor of the impulse, since no heat production could be detected. Prof. Hill's ingenuity has, however, at length overcome the technical difficulties of the problem, and he has shown that the heat liberated amounts to 0·000 069 calories per gramme of nerve per second of stimulation. The greater part of this heat is produced during the period of recovery after the stimulation has ceased, a fact which was quite unexpected and which opens up fresh lines for the study of nerve function. The means by which this minute amount of heat was measured can be briefly indicated. Prof. Hill had already used thermopiles of extreme sensitivity for his previous work on muscle. The amount of heat produced in a nerve was found, however, to be so infinitesimal that the movement in the galvanometer connected with the thermopile could not be seen. The beam of light from the galvanometer was therefore directed on to a second thermopile which thus amplified the movement in a second galvanometer and rendered it visible. Other difficulties to be overcome lay in the insulation of instruments so delicate from thermal and electrical changes coming from without. Only, it seems, during the early hours of Sunday morning are the subterranean chambers in Gower-street, where the experiments were conducted, immune from gross interference by outside agencies. It is obviously impossible to assess what will be the value to medicine of this remarkable achievement in the field of physiology. Its direct value is probably nil, but its indirect value may be enormous.

ALCOHOLISM IN ANCIENT GREECE AND ROME.

ON Oct. 12th Dr. J. D. Rolleston gave an interesting address on Alcoholism in Ancient Greece and Rome at a meeting of the Society for the Study of Inebriety. He pointed out that as the scientific study of alcoholism dates only from the middle of the nineteenth century very little is to be gleaned from contemporary medical writers as to its prevalence and effects in classical antiquity. The chief sources of information are the poets, especially the gnomic writers, such as Theognis; the satirists, including Horace, Juvenal, Martial, Lucian, and the Greek Anthology; philosophers and moralists, such as Plato, Plutarch, and Seneca; and most of all the two encyclopædic writers, Pliny the elder and Athenæus. As an adherent of the Stoic philosophy Pliny (A.D. 23–79) constantly inveighed against the luxury and corruption of the age; he devotes an eloquent chapter in his Natural History to the subject of drunkenness, and many others to the different varieties of wine and their therapeutic uses. Numerous remedies for the prevention or cure of inebriety will also be found in his pages. Athenæus, who flourished at the end of the second and beginning of the third century A.D., is of special interest to the medical reader, said Dr. Rolleston, in that he has preserved fragments which have not otherwise come down to us of medical and lay writings dealing with the subject of inebriety. In particular he makes several quotations from lost works on drunkenness by Aristotle and his disciples, Theophrastus and Chameleon of Heraclea, as well as from a lost play by Menander on drunkenness and one by Alexis entitled the Wine-bibber. Numerous chapters in the Deipnosophists of Athenæus are devoted to the enumeration of wines and drinking vessels, celebrated drinkers, the evils of wine, and cognate subjects. Some idea of the prevalence of drinking in classical antiquity may also be gained from the contemporary proverbial philosophy relating to drunkards and the numerous synonyms, both in Greek and (to a lesser extent) in Latin, for a bibulous or drunken man.

The drinking of unmixed wines at banquets among the Greeks and Romans, Dr. Rolleston pointed out, was regarded as the sign of a barbarian or a boor, and the mixture of wine with water or snow in various proportions regulated by the master of the feast was carried out in a large bowl from which the wine was distributed to the guests. Both in Greece and Rome the festivals connected with the wine god served as an excuse for widespread intoxication, and finally gave rise to such scandalous excesses that a decree of the Senate was passed forbidding any Bacchanalia being held in Rome or throughout Italy. Apart from festivals the Greeks and Romans of the classical period were, on the whole, remarkable for their sobriety in contrast with certain contemporary nations, such as the Scythians, Carthaginians, Iberians, Celts, and Macedonians, who were notorious for drunkenness. Though there is some indication of the existence of chronic alcoholism, as is exemplified by passages in Pliny and Seneca and in the lives of certain individuals, such as some of the Roman emperors, alcoholism in classical antiquity was mainly of a convivial character, and industrial alcoholism, apart from that associated with prostitution, was unknown. Dr. Rolleston quoted several passages from the classical writers dealing with the dysgenic influence of alcohol and other evil effects of drink on the community and the individual, especially the relation of inebriety to insanity, crime, and poverty, and the measures, often of a fanciful character, recommended by the ancients for the prevention and treatment of drunkenness. In conclusion, he showed that the alcoholism of classical antiquity differs from that of to-day by its predominance among the upper classes, the lack of legislative control, the absence of distilled liquors, which were not introduced until the fifteenth century, and the non-existence of syphilis, which in modern times is often contracted under the influence of alcohol and is liable to run a severe course in alcoholic subjects.

[1] Proceedings of the Royal Society, 1926, c., 223.

RHEUMATISM IN CHILDHOOD.

IT is encouraging to learn that the efforts now being made in this country to solve the complex question of the rheumatic disease of childhood have their countertype in America. Dr. Thomas T. Mackie, of New York, has contributed to the August number of the *American Journal of the Medical Sciences* an analytical study of 393 cases of rheumatic fever and 89 cases of chorea. Dr. Mackie goes to the root of the problem when he emphasises "the growing conviction that rheumatism is essentially a chronic, often a very slowly progressive disease, having periods of activity and latency which are strikingly parallel to the clinical course of tuberculosis and syphilis." As to types of the disease, he defines an acute form with multiple arthritis, fever, and leucocytosis, and a

chronic form, with less well-marked symptoms but chronic cardiac disease; there is also the chorea group, in which females predominate. First attacks of rheumatism are infrequent below the age of 5 years and reach their maximum age-incidence between 10 and 15 years, whereas chorea starts earlier—between 5 and 10 years of age in most cases. Here follows an interesting result of the analysis, for whereas in rheumatic fever the incidence of heart disease in a first attack is at its maximum between 5 and 10 years of age, in chorea it occurs more frequently, case for case, at the later ages, reaching a maximum at the time when chorea itself is less frequent. This aspect of the inquiry may be summarised by saying that the younger a child has its first attack of rheumatism, the more likely is that attack to be accompanied by carditis, while the older it is in having a first attack of chorea, the more likely is carditis to occur. Next comes the more practical question: "How long after the subsidence of an acute phase of the disease must one wait before having a reasonable certainty that potential cardiac damage has completely declared itself?" This question is, of course, bound up with the solution of the whole rheumatic problem, and it is to be feared that the answer to it is, from the economical point of view at least, a depressing one. Most observers will concur in Dr. Mackie's statement, that infection of the heart may "be both chronic and progressive and yet give little or no evidence of its presence for a period of years." This melancholy conclusion, however, carries with it the eminently practical procedure of periodic examination of rheumatic patients, even when apparently cured. With regard to the criteria as to whether active infection has been arrested or not in a given case, Dr. Mackie considers that observation of temperature, leucocyte counts, and especially electrocardiographic studies are necessary to ensure a correct régime of treatment. It is a pity he does not amplify these points in detail, since a valid criterion of latent infection would determine the question of treatment by rest-homes in a given case. In this country more stress has been laid upon the pulse-rate and the cardiac physical signs than upon blood and electrical examinations. With regard to infected tonsils, Dr. Mackie contributes another group of analysed cases, the observation of which leads him to find that whereas 42·5 per cent. of those cases, in which tonsillectomy was performed after a first attack, had later a recurrence of rheumatic fever, no less than 60 per cent. of unoperated cases relapsed within a period of three years or so. We do not know, however, whether hygienic measures, other than tonsillectomy, were taken to prevent recurrence in these cases. His last series of observations, which deal with the interval between the first attack and the first recurrence, and take account only of acute attacks of polyarthritis, forces Dr. Mackie to restate his concept of rheumatism as a "chronic, slowly progressing disease characterised by intervals of calm simulating and periods of activity which entail further damage." Unobtrusive symptoms, such as anæmia and slight muscle pains, may be the only warnings of a process of the utmost gravity; hence salicylates, in producing only symptomatic relief, may be a positive danger in that they confer a sense of false security.

THE TEACHING OF ENTOMOLOGY.

EVERY layman is familiar nowadays with the importance of insects as porters of disease. If there were no mosquitoes, fleas, or tsetse-flies the world would be a much healthier place. And man's power to control insect-borne infections can generally be exercised much more effectively against the insect than against the infectious agent itself. For when we have to deal with small things which occur in multitudinous numbers it is easier to affect them by changing their environment than by direct attack; the plague bacillus is embarrassed by taking away part of its habitat, the flea, and fleas are dealt with more simply by destroying their habitat, the rat, than by catching them with a piece of soap. To know what to do when some insect is implicated in the spread and maintenance of some disease, we must know all that is known (and will probably want to know a good deal more) about its life and habits, and entomology has now added a practical utility to its function of edification. There are, too, some striking instances of how the utmost refinements of entomology may be needed. The mystery of why Madras has escaped plague in all the years it has prevailed in most of the rest of India was solved by the discovery of the flea experts that the common rat-flea there is not *Xenopsylla cheopis*, as had been supposed, but another very similar species, *X. astia*, which had been confused with it. Those who are interested will find in the last number of the *Annals of Applied Biology* (vol. xiii., 1926, p. 402) an account by Dr. A. D. Imms of the successful control of seven or eight insect pests in the Hawaiian Islands by the introduction of other insects which fed on or parasitised them. Indeed, the case for the importance of entomology is overwhelmingly strong. It was stated to the International Congress of Entomologists at Zürich by Dr. H. S. Fremlin, of the Lymph Department of the Ministry of Health, and his paper is printed in their Transactions (vol. ii., p. 344). Insects are, he says, one of the great world menaces, and he asks that something should be done to secure that entomology is taught in every school. It is evident that no one ought to grow up without knowing that caterpillars turn into pupæ and pupæ into butterflies. And it is comforting to realise that a great deal is done already throughout the country to enforce a knowledge of insects of that order. Children nowadays generally know a good deal more about such matters than their parents, who went to school before "nature study" had been invented. What they get is, no doubt, slight, but it is a basis to which more can be easily added later if necessary, and, quite apart from the time-table, we doubt whether the application of entomology to the suppression of disease is a subject of any great educational value.

TOWARDS AN INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.

AT a general meeting of the Convention of English-speaking Ophthalmological Societies, held in London in July, 1925, it was resolved to empower its President, Mr. E. Treacher Collins, to appoint a standing committee of five, whose duty it should be to coöperate with other ophthalmological societies in promoting international congresses. This committee, consisting of Prof. Edward Jackson (Colorado), Sir John Parsons, Dr. G. A. de Schweinitz (Philadelphia) Mr. Leslie Paton, with Mr. Collins as chairman, considers that the time has now come to take steps to form an international committee. It is desired that each nation should be represented by two delegates nominated by arrangement between the principal ophthalmological societies of the nation, or, in the case where no national ophthalmological society exists, by representative ophthalmologists, and invitations to nominate delegates have been sent out. The proposal is that the international committee shall meet at The Hague in July next year. It may be recalled that before the war, 1914–18, international ophthalmological congresses met every five years, the first being held in 1857 before the International Medical Congress was established. One was due to have been held at Petrograd in 1914, but was abortive. In 1922 an attempt was made by the Ophthalmological Society of the United Kingdom to revive the meetings, but international memories rendered it of no avail. The move which began last year at the London convention will have its fruition when a representative international committee has again come into being. The primary function of the committee when formed will be to arrange for the next international congress. In the meantime it is proposed to obtain such coöperation as is possible in promoting international action in relation to the prevention of contagious

ophthalmia, the establishment of uniform methods of recording tests, and the interchange of ophthalmological literature.

MENTAL DISORDER IN SCOTLAND.

THE twelfth annual report [1] of the General Board of Control for Scotland shows that the problems before the Scottish Commissioners are very similar to those occupying the minds of their English colleagues.[2] The first subject discussed is the early treatment of mental disorder and the necessity of providing facilities for voluntary admission to mental hospitals. We have noted in previous issues the obstacle which certain parish councils have opposed to scientific advance by their refusal to forego the Government grant allowed for certified patients. As long ago as 1890, however, the parish council of Glasgow inaugurated hospital wards for the treatment of temporary and incipient mental disorder, and their example has been followed by the councils of Govan, Paisley, and Dundee. It is interesting to note that the observation wards at Duke-street and Stobhill (Glasgow) have done such good work that the erection of a third asylum for the district has not been considered necessary. Although there are only 160 beds, 1176 patients were admitted during last year and less than a third of these were eventually certified. The provision of out-patient clinics, which is being pushed with such vigour in England and Wales, is still very inadequate in Scotland. The Glasgow General Dispensary and Western Infirmary are the only clinics at present in existence, but one is to be established at the Royal Infirmary, Edinburgh. Scotland, like other countries, has found that open-air treatment has reduced the high incidence of tuberculous infection among mental patients by one-quarter.

On the whole it must be admitted that Scottish mental hospitals are behind the southern ones in the extent to which they have been "hospitalised"—at all events in name; the retention of the words "asylum" and "lunatic" in this report and throughout the country is an indication that there is yet much to be done. Very few district institutions have a visiting specialist staff; some are even run without a resident medical officer at all, while others have inadequate medical or nursing staffs. No reference is made to any system of discharge on trial or money grants. Nevertheless, as a rule the Board have been supported in their efforts by the district boards and medical officers. Many institutions now have properly equipped dental rooms and a visiting dentist; some of the larger ones have ultra-violet light and hydrotherapeutic installations. The report suggests that these expensive plants, and also clinical laboratories, should be established only in certain accessible centres and at the expense of groups of district boards. The problem of occupational therapy is dealt with in the first place, naturally, by providing work in the hospital grounds. Twenty-two of the district asylums have farms, and the Board have suggested that every institution should have a minimum of one acre to each male patient. For those who cannot be employed in farm or garden the Brabazon Society continues its valuable work. The ladies who belong to this society visit the hospital once a week to instruct the patients, and occupational therapy has also been established in asylums where there are no voluntary workers. It is now possible for all public authorities to send their cases of encephalitis lethargica to Stobhill, where special treatment and research can be carried out.

In a 15-years' review of the statistics the Board point out an apparent but not a real decrease in certified persons. The discharge- and death-rates have not appreciably altered in the three quinquennial periods, and there is, on the whole, a striking uniformity in the statistics, except for an increase in the death-rate during the war. This reflects the sensitiveness of asylum patients to the mental and physical stress of war conditions. From 1910 to 1914 there was an average of 546 mental defective patients at the two institutions; in 1919 the number had risen to 1680 in 14 institutions. It is this certification of mental defectives under a different Act that accounts—and more than accounts, in the opinion of the Board—for the diminished number of cases registered under the Lunacy Act. A census of all the mental defectives throughout the country showed that there were last year 12,969 registered persons. Apart from those under the control of the education authorities there was a total number of 2202 who had not been certified and who did not come under the statutory powers of the Board, and there is a waiting list of 250 for the institutions. The boarding-out system appears to be working satisfactorily. When comparison is made between the paragraph on mental defectives in this report and the anxiety expressed by the English commissioners the doubt arises whether Scotland is yet fully aware of the gravity of her mental deficiency problem.

On Jan. 1st, 1926, there was in Scotland a total of 18,537 insane persons under cognisance, an increase of 139 during the year. Only 597 voluntary boarders were in residence on the same date. The death-rate for the year was 8·6 per cent. The report does not discuss the problem of nursing, but leaves its readers to deduce the state of affairs from the bald facts that 1020 attendants and servants resigned during the year (being 93 less than the year before), 134 left without notice, 41 were dismissed for incompetence, and 98 for misconduct.

[1] H.M. Stat. Office, 1926, pp. 48. 2s.
[2] THE LANCET, Sept. 11th, p. 557.

"DOCTOR 'MY BOOK.'"

THIS is the somewhat enigmatic title of a play by Mr. Rudolph Cordova, collaborating with his wife, who writes as Miss Alicia Ramsey, which is a feature of the current issue of the *Tatler*, and is published in connexion with the press movement during the past week in support of the funds of St. Bartholomew's Hospital. If the title is difficult to understand there is nothing obscure about the play. It is a series of dialogues between the great Abernethy and a succession of patients and their friends who consult him, the dialogues being constructed to illustrate, as their common object, the great man's known character and notorious eccentricities. The types of Abernethy's visitors, therefore, have been selected to form obviously dramatic contrasts, and to permit the introduction of familiar anecdotes displaying Abernethy's brusqueness towards those who magnified their trifling ailments, and extreme kindness and generosity towards those who could ill afford his fees. The aptness of many of the episodes will be recognised by medical men as founded on much of the medical history of the time, in which Abernethy bulks so largely; but we do not know what the authority may be for attributing to Abernethy himself habits of gluttony, though the humour is obvious, from the playwright's point of view, of allocating such personal habits to the great public prophet of the ills which follow upon abuses of the intestinal tract. Undoubtedly the play should arouse the interest of a wide public in the prosperity of the great institution where Abernethy, the prime exponent of John Hunter's revolution of surgical outlook, so long reigned paramount, and the reproduction of Lawrence's famous portrait of Abernethy, which hangs in the hall of the hospital, is a striking one considering its scale.

RADIUM THERAPY OF CANCER OF THE CERVIX.

THE attitude of most surgeons at the present time to the use of radium in the treatment of carcinoma of the cervix was recently defined by Mr. T. G Stevens in THE LANCET (Oct. 9th, p. 769). They hold that radium applications should be reserved for clinically inoperable or borderline cases, in the belief that extended panhysterectomy gives better results in operable conditions. He went on to point out that there are no data yet available to confirm or disprove

this impression, since no large series of operable cases have been treated by radium alone, and that it is quite possible that with increasing experience the technique of radium therapy will so improve as to make it the method of election even in operable cases. We suggested six months ago [1] that since with the technique now used in some clinics the results in inoperable cases are so remarkable, the time is ripe to check the ceaseless sporadic attempts at variation and still further improvement of the methods of applying this new weapon, and to persuade at least some of those who are using it to limit themselves to an extensive trial of some agreed standard technique in a series of cases. This course has been adopted by the group of medical women entrusted by the Medical Research Council with the use of 300 mg. of radium bromide lent by the British Empire Cancer Campaign for research purposes. The first report of the Cancer Research Committee of the London Association of the Medical Women's Federation has now been issued [2] and merits praise for the clear way in which the problem is discussed and for the admirable coördination of work conducted in four hospitals inconveniently far apart. The standardisation of the treatment was made possible by the appointment of a research officer in the person of Dr. E. Hurdon, who sees every case, advises on special points, and is responsible for the case records and follow-up system. She was asked first to make a detailed survey of the literature, limiting her inquiries to those clinics at which the fate of a relatively large number of cases had been followed for at least five years after treatment. The important result of these inquiries forms Part I. of the report, and those who are interested in the present world position of radiotherapy in cancer of the uterus will find it clearly summarised in ten pages, including some 50 references to original papers. After studying the information collected by Dr. Hurdon the committee decided to adopt, with certain modifications, the methods which have been in use for 15 years at the Radium Hemmet, Stockholm, under the direction of Dr. J. Heyman. In the records from this clinic the "absolute cures" (Winter's requirements)[3] amounted to 20·29 per cent. in 375 inoperable cases of cancer of the cervix, the primary mortality being 1·19. The technique adopted by the committee, modelled on that used by Dr. Heyman, is set out in detail. After preliminary preparation of the patient, which may involve cystoscopy to exclude cases in which the bladder is involved, the vagina is disinfected and dilated and tissue is taken for microscopic examination. Two tubes of radium in tandem are then inserted into the utero-cervical canal. Flat applicators are placed in contact with the growth in the lateral vaginal fornices, and anteriorly or posteriorly as indicated. The vaginal applicators are kept in place by a firm gauze pack, which also serves to protect the vaginal mucous membrane, and to prevent the bladder and rectum from too close contact with the radium. Three applications are made, the second one week after the first, and the third two weeks after the second. The length of time of each application is 22 hours; 50 mg. element are used in the uterus and 50–70 mg. element in the vagina. The total dose varies between 5000 and 7500 mg. element hrs. The number of cases of cancer of the cervix treated thus during the first six months was 42, of which six were operable.

It is far too early to discuss results for, as is pointed out in the report, an early complete disappearance of local signs is in accordance with general experience and cannot serve as a basis for an optimistic prognosis. The work done under the auspices of this Cancer Research Committee has not been confined to cancer of the cervix; six cases of cancer of the uterus are under treatment, and one case of cancer of the vulva. It is noteworthy that the majority of the patients did not consult a physician until the disease was far advanced, and, moreover, that in more than 25 per cent. the average time elapsing after consultation before a local examination was made was seven months. Some were receiving medical attention for a year or 18 months before an examination was made. The reluctance of patients to submit to a vaginal examination at the hands of the family practitioner is well known, and cases of abnormal bleeding of vaginal discharge are often referred to medical women for this reason. This fact, and the efforts being made to conduct the investigation by medical women into the therapeutic scope of radium on scientific lines, should secure an adequate response to the appeal being made for funds to prosecute and develop the work.

[1] THE LANCET, 1926, i., 869.

[2] The Radium Treatment of Cancer of the Uterus. A Report of the Medical Research Council and to the British Empire Cancer Campaign. London: H. K. Lewis. 1926. Pp. 28. 2s. 6d.

[3] G. Winter (1923): Zentralbl. f. Gynäk., xlvii., 1084. The requirements for determining "absolute cures," which were adopted, are: (*a*) All cases which come to the clinic to be included. (*b*) All fatal cases to be enumerated. (*c*) Observations to extend over a period of five years. (*d*) No deductions to be allowed.

POSTURE AND ANÆSTHESIA.

THE importance of a correct posture of the patient during operation has long been manifest and attention has also been given to the position in which he is placed when returned to bed. In a contribution to the *American Journal of Surgery* for August Mr. Willy Meyer emphasises the dangers of material aspirated into the lungs during or soon after operation and draws attention to the value of the Trendelenburg position as a preventive measure. The value of correct posture during operation is not confined, however, to its efficacy in preventing aspiration. The position in which the patient is placed has an important bearing on the proper performance of the circulation and particularly on the due blood-supply to the brain. Dr. Leonard Hill has laid stress on the influence which gravity brings to bear in the distribution of the blood during full anæsthesia. The vasomotor mechanism is paralysed by which in ordinary life alterations of position are prevented from leading to too extensive accumulations of blood in the dependent parts of the body or too scanty a supply to those which are raised. Consequently, a low position of the head in formidable operations is as necessary for the patient's welfare from the point of view of keeping the cerebral circulation sufficient as it is for the purpose of avoiding aspiration of mucus or saliva into the air passages. When the operation involves the risk of blood or pus entering the air passages posture is, of course, of prime importance and properly managed can keep the larynx free from invasion even without the electric sucker which is now so commonly employed in these circumstances. Position, indeed, is really more reliable than the sucker, which is not immune against sudden choking. Referring to bronchitis after ether anæsthesia, Mr. Meyer quotes Prof. A. Bier for the novel treatment by intramuscular injections of 8 drops of ether in an equal amount of sterilised olive oil. This is said to be effective by making the bronchial secretion more liquid. It is an interesting suggestion in view of the diametrically opposed and strongly recommended practice of treating these patients by the use of atropine or belladonna.

LAST Monday, at 4 P.M., Sir John Rose Bradford, President of the Royal College of Physicians of London, delivered the Harveian oration, which is printed in full in this issue of THE LANCET. He then presented the Bisset-Hawkins medal for 1926 to Dr. A. T. Stanton, principal medical officer to the Federated Malay States, and director of the Government laboratories, whose work has thrown so much light on the difficult subject of the ætiology of beri-beri. This medal is bestowed triennially upon some duly qualified medical practitioner who is a British subject and who has during the preceding ten years done such work in advancing sanitary science or in promoting public health as in the opinion of the College deserves special recognition. Previous recipients of the medal have been Sir Ronald Ross (1914), Sir Arthur Newsholme (1917), Sir William Hamer (1920), and Sir Thomas Legge (1923).

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CXCIV.

THE TREATMENT OF SENILE INSANITY.*

II.—SENILE MENTAL CONDITIONS.

SENILITY, like presenility, is a relative term and cannot be defined with any accuracy. In this article mental deterioration appearing from the early 'sixties to the end of life is that to which the term senile dementia is applied. The treatment and care of a case of simple senile dementia will be first considered, afterwards the special features of presbyophrenia, senile confusion and delirium, and senile dementia associated with arterio-sclerosis and certain neurological disturbances will be discussed.

Simple Senile Dementia.

This condition is an exaggeration of our common inheritance, if life be sufficiently prolonged, that is, dotage. There is loss of memory for recent events, increasing inability to recognise faces, an egotistical outlook, and a failure to consider the needs of others. Change is intolerable; the same food, the same chair, the same comforts must all be available at the instant they are required. Reminiscences of the scenes and activities of youth are repeated ad nauseam, and there is a progressive failure of comprehension for private and public affairs. These mental changes are accompanied by the well-known physical regression, the wrinkled skin, loss of hair, failure of strength, nocturnal wandering, and somnolence by day, until "last scene of all, that ends this strange eventful history, is second childishness, and mere oblivion—sans teeth, sans eyes, sans taste, sans everything."

It should be possible to treat the simple senile dement successfully in home surroundings. If there is no responsible relative who will undertake his or her care, homes can be found, where for a moderate payment the senile patient is adequately cared for. The practitioner should make careful inquiries before advising reception into such institutions. Many poor persons will have to find a shelter in Poor-law institutions. Every effort should be made to prevent old patients from ending their days in an institution for the insane.

Rules for the Management of Simple Senile Dementia.

It will be the duty of the practitioner to frame certain simple rules for home nursing.

The bedroom is best situated on the ground floor, or at any rate, the first floor of the house. Slippery polished surfaces, loose mats or rugs, must be avoided as a fall may easily result in a fracture. Arrangements must be made to accompany the patient up and down stairs. Open fires must be provided with guards, and it may be well to block the lower sashes of windows on the first floor if the bedroom is upstairs. A commode in the sitting-room and bedroom is useful. Disinfectants must not be left lying about in the water-closet. A punctual routine in the management of the senile patient is important.

The *diet* should be light, especially at night, the principal meal being taken at midday. Meat should only be allowed once, and should be minced in the more advanced cases. It is better not to give food in between meals; instead the intervals between meals may be shortened and their number increased. Some patients will be difficult to persuade to take enough food, others are voracious and eat too quickly and too much. Milk, eggs, fish are all suitable. Meat, raw vegetables, and raw fruit should be curtailed. Wine may be allowed, and tobacco permitted after food. Whatever arrangements are made, punctuality in serving is essential. If there is a tendency to frequency of micturition at night, fluids should be reduced to a minimum after 6 P.M. The evening meal should be light, and eaten at 7 P.M. at the latest. Early hours must be kept and 9 P.M. should see the patient retiring to bed. Male patients may be allowed a urine bottle within reach, so that it is not necessary to get out of bed to micturate. Nocturnal restlessness is in some cases a great difficulty, and is often worse with women, who choose the early hours to get up and go dusting. A cot with high sides may be tried, but there is always the risk of an active patient trying to climb over the sides. A box mattress on the floor is safer. The bedding should be generous, and bed socks of wool invariably worn. Hot bottles are advisable in the winter months.

Exercise.—A daily walk should be taken, with an escort, a necessary precaution in towns or in the neighbourhood of main roads. Care must be taken to see that the clothing is warm, and that wool is worn next to the skin. A woollen waistcoat or jumper should be worn in the autumn, winter, and spring seasons. Easterly winds are a menace to all senile patients, and with the wind in that quarter outdoor exercise may be foregone. Patients who are too feeble to walk may be taken for drives. A horse-drawn vehicle is more suitable for senile persons than the rapidly moving car.

Insomnia.—The best hypnotic is alcohol. Hot whisky and water, or brandy and water seem to produce the best results, but well-warmed claret or burgundy may serve. If alcohol fails several hypnotics may be tried. Paraldehyde ʒ i. or ʒ ii. is safe, and its taste rarely resented by the senile patient. Medinal gr. vi. or gr. x. may be used for long periods, is easily administered, and without risks. Amylene hydrate, ʒ ss. to ʒ i., is also satisfactory. Sulphonal, chloral, and bromides are contra-indicated. Patients who wake in the early hours of the morning will often drop off after a glass of warm milk or some patent food.

Restlessness is seldom extreme in the simple case. Bromides, if used at all, are useful here. The following mixture is suggested for occasional use:—

> Potass. bromid. gr. xv.,
> Spt. ammon aromat. ℥ xv.,
> Aquam chloroformi. ad ʒ i.,
> ʒ i. s.o.s. ex aq.

Tr. opii 10 to 20 drops three times daily is often most effective in controlling restlessness. The dose may be increased and only gradually diminished when it has fulfilled its purpose. A warm bath is an admirable measure, and will often promote sleep.

Constipation is a troublesome feature of senile dementia. There should be no hesitation in prescribing an enema, especially where there are signs of agitation and restlessness, common results of constipation. Ext. cascara liq. ʒ ss. to ʒ i. at night seems to suit senility. A freshly made infusion of two or three senna pods is another good nightly draught. Oily preparations are not suitable, and salines will often upset patients and make them sick. Small doses of calomel, gr. ¼ every hour up to gr. iv., give good results. A suitable laxative should be adhered to when it is found.

Observation.—Constant watchfulness must be impressed upon those responsible for the care of a senile dement. Not only are there dangers from falling and wandering but such patients are notoriously careless with fire. Matches and spills used by smokers must be dealt out sparingly. Shaving may present difficulties also. Some member of the household will usually undertake the task with a safety razor. A nurse or male attendant will be a great help in the management of simple senile dementia.

Presbyophrenia.

This is a variety of senile dementia in which there is a profound disturbance of memory and orientation. The patient becomes absolutely lost in time and space, fails to recognise his or her relatives, and fabricates freely, relating the most impossible experiences. Some develop ideas of persecution, and may become abusive and threatening to others. On the whole, they are suggestible, and can be managed at home. The treatment differs in no way from that of the simple form, save that extra vigilance is necessary. A temporary removal to a hospital may become advisable, and is an event for which the relatives should be prepared.

Senile Confusion or Delirium.

In this class are found the cases that give most trouble to the practitioner. They are unreasonable, often hallucinated, suspicious, and impulsive. Extreme wandering is common, suicidal attempts occur, and assaults upon others result from delusions of marital infidelity or paranoid ideas. Refusal of food may also arise, and is of grave import in an old patient. The need for institutional care is evident, and should be urged by the physician in charge. Such cases prove an unfair burden to any household, and it is remarkable how often removal from home produces improvement, and may lead to an early return of the patient to home surroundings. In emergency great excitement may be controlled

* An article in this series on the Treatment of Presenile Mental Disorders appeared last week.

by one or at most two injections of morphine hydrochloride gr. ¼ and hyoscine hydrobromide gr. 1/120 or 1/150. Hyoscine should on no account be continued.

Senile delirium is a condition which suggests a terminal infection, and is nearly always fatal.

Senile Dementia Associated with Arterio-sclerosis and Neurological Disturbances.

Arterio-sclerosis may be a prominent feature of senile dementia. Cerebral hæmorrhages and thromboses occur. Convulsions (senile epilepsy) are not uncommon. Headache may be a constant complaint. Convulsions are treated with a prompt enema, an injection of morphine, followed by a few doses of the sedative mixture already suggested. If the fits continue lumbar puncture will often relieve them. Nitrites and iodides relieve headaches, and help most patients materially. The arterio-sclerotic changes in the vessels of the cord may produce spastic paraplegia, sensory losses, retention or incontinence of urine and fæces, and trophic sores. Absolute cleanliness in nursing is essential, together with a diurnal toilet of the skin over bony prominences with spirit and an antiseptic powder. Actual sores must be dressed twice daily with a mild astringent lotion. An air or water bed will have to be procured. Some patients complain of severe cramps in the legs, which may be due to cord lesions, or arterio-sclerotic changes in the vessels of the limbs, often accompanied by intermittent claudication, a limp in walking. A useful mixture to relieve these pains is:—

Potass. iodid. gr. i.ss.,
Spt. ætheris nit. ℥ xv.,
Syr. tolut. ℥ ss.,
Aquam ad ℥ ss. t.d.s. ex aqua.

Parkinsonism and chorea may both occur in senile dementia. Hypochondriasis is the outstanding feature of the mental state of paralysis agitans. Treatment will not be considered here, but it may be noted the continued use of hyoscine to relieve Parkinsonism has been known to produce a confusion accompanied by hallucinations.

The Senile Delinquent.

Reference must be made to the treatment of delinquency, though it consists in maintaining an adequate control. Sexual excitement may be an unpleasant feature of senile dementia. Improper advances to girls, or boys, exhibitionism and various other indecencies occur in any form of the disorder. Homicidal attacks and suicidal efforts are more common than is generally admitted. If adequate control cannot be secured at home, certification must be advised, where it is possible. In any case, if deterioration is advanced, and antisocial acts a frequent occurrence, the presence of such a patient imposes an intolerable burden on most households, and may have a most undesirable influence upon younger generations.

Medico-legal Points.

Practitioners may be called upon to give evidence as to the testamentary capacity of a senile dement. The important points to remember are that a medical colleague should be called in, that each physician should preferably obtain two interviews, and that notes made at the time of the examinations should be carefully kept. The practitioner should ascertain whether or not the patient understands the nature and extent of his property, and how and why he intends to dispose of it. The presence or absence of delusions, and the degree of orientation should be noted. In giving evidence the physician should beware of being trapped into an attempt to define the difference between normal senescence and senile dementia. Lastly, it is often forgotten that the affairs of a senile dement may be controlled, without certification, under Section 116 (*d*) of the Lunacy Act. Application to the Master in Lunacy should be made through solicitors, and must be supported by medical affidavits.

G. W. B. JAMES, *M.C.*, M.D., D.P.M. Lond.,
Resident Physician, Moorcroft House.

Special Articles.

THE MOTOR SHOW AT OLYMPIA.

SOME SPECIAL FEATURES.

IN reviewing last year's show we ventured to suggest that the intense competition between manufacturers of moderate-priced cars could hardly last. Actually it seems to be fiercer than ever, and to be entirely unaffected by industrial trouble. Not only have the prices of many cars been still further reduced, but the cars themselves are better and more lavishly finished and fitted than ever. Hardly any old favourites are absent, and many models and some makers appear for the first time.

One of the most interesting features is the extraordinary cheapness of small covered cars. This is the first show when the small coupé or saloon is really within the reach of the smallest purse that is capable of buying a car. "Open" cars, on the other hand, have such good hoods and side screens and close so tightly that even those who have constantly to face inclement weather conditions will not suffer much inconvenience. Four-wheel brakes are the rule rather than the exception, and balloon tyres and shock absorbers are fitted to the cheapest models. It is not possible to offer advice except in the most general terms to the medical buyer. Price and quality run very closely together, and the more the doctor pays for a car of a given power the better balanced is its engine and the more carefully finished are its gears likely to be. He can also, if he wishes, spend extra money to obtain the undoubted advantages of real leather and pneumatic cushions, and in various accessories. But even the cheapest cars do not fall below a certain minimum of quality, and that minimum is higher than anyone would have considered possible five years ago. Probably nearly every car in the show, except some of the quite experimental models, can be trusted to give satisfaction for years if reasonable care is used.

Cheap Cars.

For the first time in history there is a £100 car. Pre-war attempts never produced at this price anything that could really be looked on as more than a "cyclecar" but the 8 h.p. Gillett gives promise of being good value. It is made by the Ensign Co., who have produced a limited number of very good 12 h.p. cars, and has a four-cylinder engine, four-wheel brakes, and a self-starter. It is, however, hardly past the experimental stage, and will not be seriously marketed before next April. The nearest approach to the £100 mark, therefore, continues to be the Trojan at £125 with short body and solid tyres. There is also a full four-seater at £140, and pneumatic tyres cost £5 extra on either model. The medical man of limited means might do much worse, as the car is suspended on four long cantilever springs, holds its top gear like an American six-cylinder car, has full all-weather equipment, and a device for starting the engine from the driver's seat. Its only drawbacks are the low speed and a tendency for the front wheels to skid on a greasy surface. The well-known 7 h.p. Austin is down to £145, and is better than ever; it does 45 miles to the gallon and is twice as powerful as it looks. The triangular war between Morris, Clyno, and Citroën continues apace, and all three sides have extra attractions to show. The Morris-Cowley is now hardly recognisable, for it is dark blue, with a flat radiator somewhat like that of the Rolls, which gives much better cooling than the old type. The wheelbase is four inches longer and the four-seater has a correspondingly longer body of the "bath" type, with adjustable and separate front seats. Smith shock absorbers replace the Gabriel snubbers. The prices are £148 10*s.* for the two-seater or £160 with four-wheel brakes; £182 10*s.* for the coupé, and £195 for the saloon. All Clynos now have four-wheel brakes. The standard two-seater costs £160 and the

four-seater £172 10s.; the "Royal" models, with their more luxurious equipment, £195 and £199 10s. respectively. The four-door saloon costs £230. The Citroën 11·4 (built in this country) is sold as a four-door four-seater with four-wheel brakes for £165, and a four-door saloon for £210. There is little to choose between these three makes. The medical man who wants a car at this price should try them all before he decides.

"Twelves" and "Fourteens."

The range of choice in this group is immense. "Twelve" means nowadays something a little bigger than a Morris-Cowley, and "fourteen" the lower edge of the big car class. Cars in this group are designed with a view rather to quality and luxury than to a minimum price, and every one is equipped with almost every accessory and convenience that a professional owner can find a use for. Low or medium pressure tyres and four-wheel brakes are universal. The following are a few examples out of perhaps a hundred. The Austin 12 is one of the happiest designs ever executed. Although some subtlety in its dignified proportions suggests a large car, it is only slightly bigger than the ordinary "11·9." It is sturdy enough, however, to carry quite a roomy saloon. The two-seater costs £275, and other models proportionately more according to the elaboration of their coachwork. Hillmans have always made good cars, and the Hillman 14, introduced for the first time last year, was their first attempt at something beyond the light class. It amply maintains their reputation. The touring car at £275 is the cheapest model, but there is a beautiful four-door saloon at £345. Humbers have put a two-litre engine into their last year's 12 h.p. chassis and made it into a 14–40. This firm have too much experience to be likely to commit the mistake of overrating the strength of one of their frames; the 12 h.p. engine was powerful enough, and the new model should be a treasure. Another new two-litre car is the Cluley. This firm already makes a 14–30, and their 1927 14–50 is distinguished by a 4 ft. 8 in. track and an overhead valve engine of over two litres capacity. The design is conventional, and the gear-shift, as on most English cars of this size nowadays, is on the off-side. The price is £400 for the saloon, a very good bargain. The 14–30 costs £295 both as a two- and a four-seater.

Small "Sixes."

There are, of course, many small six-cylinder cars already on the market, such as the A.C. and the Talbot, but this autumn brings several new ones, some of them at a price low enough to be tempting. They are fascinating cars to drive, as they have a smooth silky pull and can be driven through traffic and round blind corners at a walking pace on top gear. The A.C. 16–40 is very light for its power, and with the handy "Aceca" coupé body costs £455. The new Talbot 14–45 is priced at £415 for the two-three-seater. In addition to the virtues which every Talbot car possesses, it has some cleverly thought-out equipment, such as a direction indicator with red arrows a foot long (possibly anticipating future legislation), a switch for the near-side headlamp, and exceptionally easy adjustments for the brakes. An interesting new-comer is the Brocklebank 15, which is to be sold as a saloon only at under £400, a price which will allow it to compete with the American models. It is obviously designed by men of great experience and has hydraulic four-wheel brakes. The new Singer six should be ideal for the medical man, as its price is only £350 as a saloon. The upholstery is pneumatic, and there are four wide doors that can be locked. It has all the usual luxury equipment and more.

Accessories.

In these days of traffic congestion buffer bars have ceased to be an example of American eccentricity and have become an insurance policy against minor collisions, for they take about 15 miles per hour off a shock. They are quite decorative, and some rear buffers can be combined with luggage grids. They are well worth fitting on a valuable car that is to be exposed to constant town driving. Double-bar models vary in price from £7 10s. to £3 5s.; single-bars from £5 to 45s. The Andre Popular model is the cheapest.

Nothing is quite so necessary to the doctor, especially in winter, as some kind of thermostatic device to enable the engine to warm up quickly and to remain warm. The simplest device of this kind is a radiator jacket, costing from 15s. to 25s., and a more ambitious one is a metal shutter on the Venetian blind principle, costing between 40s. and 60s. The Benjamin Electric Co. make very good ones, and also make the Boyce Motometer, by which the driver can keep track of the water temperature. Some sort of thermometer is vital if a muff is fitted and is desirable in any case. It costs a guinea. There are also small thermostatic valves at 30s. or so for fitting between engine and radiator to control the flow of water. It is possible to buy a spotlight for 17s. 6d., and very useful accessories these are, especially if they have a driving mirror on the back and 12 ft. of flexible lead, so that they can be carried about round the car. 50s. will obtain a good one.

Conclusion.

The doctor cannot do better, before he goes to Olympia, than to study the *Autocar* show numbers, the first of which, dealing chiefly with accessories, appeared on Oct. 8th. This week's issue contains a guide to the show, in which the car exhibits are described and their positions at Olympia indicated for the benefit of visitors. A price classification of cars is a feature that will be appreciated by all who are seriously thinking of buying a car and have to consider the monetary side. The issue of Oct. 29th will give a full illustrated account of the exhibition and will constitute a valuable record of what appears to be one of the most interesting automobile shows ever held.

MEDICINE AND THE LAW.

Dangerous Drugs Act Prosecution; Important Submissions for Defence.

AT Marlborough-street police-court on Oct. 15th Lieut.-Colonel John Kynaston was committed for trial at the Old Bailey on a charge raising important issues. He had been summoned for aiding and abetting, counselling, and procuring Rowland Pawsey, registrar of marriages, Marylebone, to attempt to obtain possession of a dangerous drug (powdered opium) contrary to the Dangerous Drugs Regulations, and also for falsely using the descriptions M.R.C.S. and L.R.C.P. Lond., implying that he was a registered medical practitioner on August 23rd, contrary to the Medical Act, 1838. The prosecution alleged that the accused treated Mr. Pawsey for catarrh and handed him a prescription at the top of which were the words "late R.A.M.C., L.R.C.P., M.R.C.S.," while at the bottom, after his signature, were the words "Lieut.-Colonel R.A.M.C., retired, M.R.C.S., L.R.C.P. Lond." The prosecution stated that Lieut.-Colonel Kynaston's name had been removed from the lists of the two colleges indicated and from the Medical Register. The defence took the following points. First, it was submitted that, as Mr. Pawsey could not be convicted of an unlawful attempt to obtain a prohibited drug (since Mr. Pawsey did not want such a drug and did not care whether he got powdered opium or powdered rhubarb), therefore Lieut.-Colonel Kynaston could not be convicted of aiding or abetting him. Secondly, it was urged that the Dangerous Drugs Regulation mentioned in the charge was ultra vires because the Act never authorised the Home Secretary to make a regulation dealing with an attempt to obtain possession of a dangerous drug. Thirdly, in relation to the alleged offence against the Medical Act, it was submitted that the preamble to the Act showed that Parliament thereby intended to distinguish qualified from unqualified practitioners. The accused had been a fully qualified practitioner

ever since 1885. He was placed upon the Register in that year and he remained registered for over 40 years. He had served with the R.A.M.C. from 1886 till his retirement in 1905 and again during the Great War. In 1922 the General Medical Council had removed his name from the Register for alleged advertising amounting to "infamous conduct" in a professional respect. But nothing that the General Medical Council or the colleges could do could prevent Lieut.-Colonel Kynaston from saying that he was to-day a fully qualified medical man. He could not issue death certificates or hold certain public appointments specified in the Medical Act, but, apart from these and other limited disabilities, he was at liberty to practise.

Mr. Cancellor, the stipendiary magistrate, asked if it was submitted that the defendant was entitled to use the letters "M.R.C.S." Mr. Edmond O'Connor, appearing for the defence, was not prepared to answer in the affirmative, but reiterated that Colonel Kynaston was a fully qualified medical man. The magistrate adjourned the second summons sine die but committed the defendant for trial on the first, sending the case to the Old Bailey in view of the importance of the submissions made by the defence.

Successful Action for Fees.

Medical practitioners' services in particular contingencies cannot be uniformly appraised like items in a grocer's catalogue. When a doctor sues a patient for services rendered, the law assumes that the work was not done for nothing and the jury—or, in the absence of a jury, the judge—is asked to say what is the proper remuneration for the work, having regard to the nature and extent of the work and the standing of the practitioner. Any instance, therefore, of a court awarding a doctor a particular fee for a particular service is not to be taken as a universal rule; it does not follow that the same or another court would necessarily award the same sum for the same service in another case. Nevertheless, in practice a certain measure of standardisation is bound to be established, and the fee awarded to a particular doctor is of interest to other doctors. In a recent case in the Llandudno county court Dr. S. L. B. Wilkes sued the executors of the late Mr. R. E. Lloyd, of Colwyn Bay, to recover his charge for two medical certificates. Mr. Lloyd had fallen ill and died shortly afterwards. Dr. Wilkes was called in and on his report to the coroner an inquest was deemed unnecessary. Two insurance companies required a medical report. Dr. Wilkes's claim for fees included a charge of a guinea for each report. The executors took the view that the two reports should have been priced at half-a-guinea each. They, therefore, paid into court a sufficient sum to meet his claim, less one guinea. This meant that, if Dr. Wilkes did not recover a larger sum than the amount so paid in, he would lose the costs of his action from the date of the payment into court. The judge, however, awarded him the full sum claimed. A medical man, observed His Honour, was not like a solicitor whose fees were fixed by scale. The plaintiff was an M.D. of London and the charge of a guinea for a certificate by him was not out of the way at all. As already explained, this decision does not mean that a doctor will always be able to recover a guinea in the same circumstances, but it is important as indicating that in those circumstances the charge of a guinea was considered reasonable.

Hair-dresser's Licence Revoked; Alleged Exorbitant Charges for Scalp Treatment.

Sir Chartres Biron at Bow-street police-court lately upheld the action of the London County Council in revoking the licence granted to an establishment for facial and scalp massage, chiropody, and electrical treatment. It was stated that a visitor to England from Canada went to the shop of Mr. Joseph Caplan, a Charing Cross hair-dresser, last December and was induced by an assistant to have a course of four applications of special treatment for the scalp at a charge of £1 11*s.* 6*d.* He was also sold a bottle of lotion and a pot of ointment with an arrangement for future supplies. In all he was charged £7 18*s.* 3*d.*, though according even to Mr. Caplan's own valuation the charge should have been less than one-third of that sum. It was suggested that the customer was induced to pay an outrageous price by the pretence that he was suffering from a disease of the scalp when in truth and in fact he was not so suffering at all. For the hair-dresser it was stated that, before any complaint had been made, he sought out the visitor, explained the overcharge, returned the full amount of the money, and three days later dismissed the assistant. Two witnesses, moreover, came to say that they had benefited by this special scalp treatment. Sir Chartres Biron held that, even assuming that Mr. Caplan had been absent on the occasion in question, there was sufficient evidence that his establishment was not properly conducted. The appeal failed and the licence is revoked.

The public must be protected from bogus diagnosis of scalp disease and from gross overcharges in respect of it. Mr. Caplan may have been unfortunate in his assistant, but it is satisfactory to find that the vigilance of the General Purposes Committee of the L.C.C., and its prompt action in revoking the licence, found support and confirmation on a re-examination of the facts by an expert legal tribunal.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Aberdeen Hospital Development.

FOR several years the city of Aberdeen has been much exercised about the inadequacy and scattered nature of the existing hospital services. Under the inspiration of Prof. Matthew Hay a large scheme was put forward for uniting the various hospitals in one campus, and has had much support, but the difficulties have been enormous, and meanwhile the public health service of town and county must, like the King's Government, be "carried on." This is, no doubt, the meaning of the expansions now announced. The Aberdeen City Hospital is to undergo further enlargement at a total cost of nearly £70,000, the extensions including a new venereal disease ward and department, a new 60-bed ward, two 40-bed wards, and a new nurses' home. When the work is complete the hospital will have nearly 500 beds. This extension, however, is all in the day's work. What does present novel features of great significance is the arrangement now all but completed between the public health authority and the Poor-law authority. The town council, as public health authority, is to take over from the Poor-law the general and the special hospitals at Old Mill, which were opened in 1907 to provide for the medical work of the Poor-law authority. During the war those two fine hospitals were used for military purposes; but, owing to certain conditions, the Poor-law authorities found it impossible to make full use of the buildings, and were unable to persuade the General Nursing Council for Scotland to accept their training as qualifying for registration. This will now be at an end. The town council is to take over the buildings on condition that it provides for the full medical treatment of all the Poor-law patients for whom the parish council is responsible, and that it adapts the special hospital for the treatment of surgical tuberculosis, pneumonia, and other illnesses, both for the city and the neighbouring counties in the north-east of Scotland, in coöperation with the local authorities of those counties. These developments should result in the hospital being recognised as a training school for nurses and add greatly to its efficiency. It is at once a symptom of the growing demand for hospital treatment and of the need for bringing the Poor-law work on to the plane of modern medicine. Already in Scotland it has happened that a well-equipped Poor-law hospital has been placed in part at the disposal of voluntary hospitals or public health authorities; but this is the first time that a local authority has proposed to take over, lock, stock, and barrel, the full medical organisation of the

Poor-law and to do the work of the Poor-law as well as their own.

Analogies from the Eye.

The opening address of the winter session at the James Mackenzie Institute for Clinical Research, St. Andrews, was delivered on Oct. 5th by Dr. Maitland Ramsay, the hon. director. He pointed out that in the eye physiological and pathological processes can be directly observed as they occur in a state of nature, as distinguished from experiment under artificial conditions; since it is a fundamental principle that similar structures behave alike in all parts of the body, the phenomena observed in the eye are a valuable index of the conditions obtaining in other organs. With this in mind, he drew attention to analogies and contrasts between the non-striped muscle of the eye and that of the heart and other hollow viscera. The nerve-supply of the non-striped muscle of the eye is derived from the sympathetic on the one hand, and the cranio-autonomic on the other—the dilator muscles, whatever their position, having a sympathetic supply, while the constrictor muscles are innervated by the cranio-autonomic. These supplies are anatomically, as well as functionally, distinct. As a result of this reciprocal innervation the pupil is never at rest, the two opposing actions maintaining an equilibrium adjusted not only to the influence of light but to afferent impulses from all over the body. The pupil, for example, varies with respiration, while it contracts during cardiac systole and dilates during diastole. In the eye the dissociation of structures concerned in contraction and dilatation is so complete that a study of the reflexes of the pupil ought to throw light on the mechanism of the heart-beat and the peristalsis of the bowel. Speaking of the analogy between the nerve-supply of the iris and of the heart, Dr. Ramsay pointed out that sympathetic and cranio-autonomic nerves opposed one another in each instance; contraction of the pupil is analogous to slowing, and dilatation to quickening, of the heart. In their reaction to drugs the two organs show a similar analogy. Atropine dilates the pupil and quickens the heart by paralysing cranio-autonomic endings. Adrenalin produces similar effects by stimulating the sympathetic. Loss of the light reflex in Argyll Robertson pupil is no evidence of disease of the iris itself, any more than heart-block is evidence of disease of the ventricular muscle. The severe pain which accompanies spasm of the iris is comparable to that accompanying spasm of non-striped muscle elsewhere—in the heart, intestine, or ureter. The process underlying its production is in each case the same. The ciliary muscle and the heart muscle are two muscles of the body which can be overworked by an effort of will; in one instance the result is the pain and hyperalgesia of eyestrain, and in the other it is angina pectoris. Both can be restored by physiological rest. Each muscle hypertrophies when subjected to prolonged strain and both become, at the same time, more easily broken down.

On Oct. 12th Prof. J. A. MacWilliam read a paper on High Blood Pressure from the Physiological Aspect, before a large audience. An animated discussion followed.

Ices.

At a recent food exhibition, which was a trade affair, there was one very popular stall selling ice-cream. The novel feature about it was that the stall was run by a large dairy company. Obviously the trade in ice-cream is growing large enough to become a feature of the milk market. This trade is difficult to regulate, and it is interesting to speculate whether the fact that a large dairy company finds it worth while to establish such an exhibit means that the manufacture of ice-cream for the general market can be made to pay. Any physician knows that ice-cream, properly made, may be a very valuable nutrient and therapeutic agent, whilst of its popularity with all classes there can be no doubt. The meaning of such popularity is a social problem for the nutritionists. It may be that the excess appetite for this type of preparation is only a symptom of some deficiency in the normal diet. Anyhow, it is an interesting fact to observe that a general dairy company should make the commercial experiment.

Housing.

It is now possible to get a rough idea of the number of houses built in Scotland since 1919. Of houses actually completed, either by local authorities or by subsidised private enterprise, the number is approximately 44,000; the number under construction is about 20,000. A striking feature of the Scottish industrial landscape, say between Edinburgh and Glasgow, are the numerous groups of new houses visible either from road or railway. The comment on the groups of steel houses now appearing is that they look "very pretty." Time alone will tell what satisfaction they can give; but, at least in external appearance, they hold their own. What proportion of houses is due to unsubsidised private enterprise it is impossible to say, but, on the whole, it looks as if the housing shortage of Scotland is now being systematically overtaken. To judge by the official figures the monthly output seems to have reached an average of round about 1000. Large schemes of slum clearance have already been officially investigated and others are being studied.

The Midwifery Position.

The doubling of the training period for midwives has had a disturbing effect on the maternity hospitals. It appears that it is now almost impossible to get probationers. Both in the east and west of Scotland this has been felt so severely that the maternity hospitals have either reduced or abolished their fees for training.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Intracutaneous Vaccination.

AT a recent meeting of the Budapest Royal Medical Society Dr. Géza Petényi read a paper on intracutaneous vaccination against small-pox. When using the scarification method, he pointed out, it is advisable not to bandage the site of the vaccination, because evaporation is checked, the skin gets macerated under the bandage, and secondary vesicles appear. Complications may arise, such as erysipelas, sepsis, encephalitis, and generalised vaccinia, and vaccination is contra-indicated for all children who are not perfectly healthy; this applies equally to older infants suffering from mild alimentary disturbance. Serious trouble may be caused by the presence of eczematous and inflammatory skin diseases, and vaccination should also be postponed when there is any possibility of the child being infected with skin diseases by those around him. Intracutaneous vaccination, said Dr. Petényi, is much superior to scarification, and very probably in a few years will be adopted exclusively. The lymph obtained in phials needs to be diluted with sterile salt solution from 40 to 100 times, and of this dilute solution 0·1 c.cm. is injected into the skin of the forearm or thigh. It is advisable first to puncture subcutaneously and then, passing the needle under the skin for 1 or 2 cm., to push the point of the needle into the superficial layer. The point of the needle should not become visible on the surface of the skin or a regular vaccination vesicle will develop. After the needle has been withdrawn the site of puncture is painted with tincture of iodine. In the course of intracutaneous vaccination two phases are discerned: after 24–48 hours a small, purple solid papule arises, and between the tenth and fourteenth days a round or oval red infiltrate appears, reaching its maximum in three days and then beginning to recede. A small infiltration may remain for months. Fever is present only in the second phase, and even then is considerably less than when scarification is employed; all

symptoms due to the vaccination are mild in their course. Result is assured by the evolution of the second phase. Numerous control observations indicate that the immunity produced by the intracutaneous method is equal to that caused by scarification in both duration and intensity. The new method has the advantage that secondary infections, autoinoculation, and scar-formation are strikingly absent, and that the symptoms are milder. In the presence of an eczema, however, neither form of vaccination should be used. Dr. Petényi considers that it is a mistake to vaccinate infants, as is now done, between the fifth and twelfth months of life, since the rapidly growing organism is at this time especially sensible to insult. It must also be remembered that this is the time of weaning, when the resisting power of children is reduced, even if they seem to bear it well. A further argument against too early vaccination is that vaccine renders the organism allergic, not only to the vaccina and variola virus, but also, apparently, to other substances; it is a common experience to observe in children obstinately recurring strophulus, the commencement of which is coincident with vaccination. If the operation were done at a later period of life these inconvenient sequels would be milder and have a shorter course, if only because as time passes the tenderness of the skin decreases.

The Meinicke Micro-reaction for Syphilis.

At a recent meeting of Hungarian pædiatrists Dr. Ödon Kovács gave an account of his investigations into the Meinicke micro-reaction for the diagnosis of syphilis. Comparative tests, he said, were made in 520 cases. The Wassermann and the Meinicke reactions agreed in 461 cases (88·7 per cent.), and differed in 59 (11·3 per cent.), this ratio conforming to the results of other workers. Where they differed the Meinicke reaction was positive and the Wassermann negative in 9·2 per cent. of cases, whilst in 2·1 per cent. the Wassermann was positive and the Meinicke negative. The cases showing differences were almost all of them latent and treated cases. Out of 63 manifest cases of syphilis the Meinicke reaction was positive in 61, and the Wassermann reaction in 60. In 45 healthy infants under 6 months old Dr. Kovács did not get one single positive Meinicke reaction. As a result of his observations he regards the Meinicke reaction as more sensitive than the Wassermann, but he does not go so far as to say that it is of equal value in the diagnosis of syphilis; this can only be decided after several thousand tests have been made. For the time being he recommends that the Meinicke reaction be used only for orientation; if it prove positive, it should be corroborated by the Wassermann reaction. By this means it would be possible to make systematic blood tests in every single case in children's hospitals and save much time; the new reaction does not require the expensive laboratory equipment nor the services of a bacteriologist which would be needed if the Wassermann reaction had to be done in every case.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the statistics of three English county boroughs and one Scottish burgh for 1925:—

Name of town.	Estimated mid-year population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.	
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Infant mortality.	Maternal mort. from childbirth.
Bradford ..	290,200	16·6	14·0	0·98	1·40	3·1	1·4	95	3·7
Portsmouth..	232,900	19·1	12·3	1·09	1·39	2·0	1·4	62	2·5
Oldham ..	146,200	15·5	14·8	1·02	1·37	3·4	1·6	103	6·1*
Paisley.. ..	85,960	22·5	13·2	1·34	1·20	2·5	1·5	96	6·7

* Of the 14 deaths contributing to this rate 9 were from "abortion, miscarriage."

Bradford.

Dr. John J. Buchan says that the hospital accommodation available for Bradford amounts to more than 3500 beds—about one bed for 80 of the population. Only one of the sources of the water-supply is plumbo-solvent—namely, that from the peaty uplands of Thornton Moor. This water has been treated for the last five years by the addition of calcium carbonate and subsequent filtration through slow sand filters, with the result that the amount of lead present in the water, when drawn before 8 A.M., is almost nil. The scheme for the conversion of privies makes progress, the number having been reduced from 10,367 in 1920 to 2612 in 1925. In 954 observations of industrial smoke, 141 chimneys were found to be transgressing the limit or on the verge of doing so. The causes of the excessive smoke were ascertained and the persons responsible were advised. In one case proceedings were taken for dense smoke emitted for 37 minutes during one hour. The defendant alleged that the smoke was not dense and the case was dismissed. Acting on the advice of the stipendiary magistrate, the smoke inspector has cautioned the responsible person and made subsequent observations of the chimney. This method has not proved effective, and Dr. Buchan regrets that such an appeal to reason meets with so little response. The cow population of the city was 3441 in 266 dairy farms. The total quantity of milk consumed is about 14,500 gallons daily, or less than half a pint per head. In the city 7500 gallons are produced, the remainder coming from outside by rail or road. Among the city cows 32 cases of tuberculosis were discovered; in 24 the udder was affected, and in 8 the disease was in an advanced stage. Ten of the cows were slaughtered by the owners, and 11 were taken away from the city and lost sight of. The introduction of the Tuberculosis Order on Sept. 1st enabled 11 to be dealt with, the compensation paid being £101. The Order will, it is hoped, henceforward secure that dangerous tuberculous cows are dealt with in a satisfactory way. Of the 126 samples of milk taken in the course of delivery to the consumer 7 were found to contain tubercle bacilli. The mortality-rate from pulmonary tuberculosis has shown a steady decline during the past ten years, and the same may be said of non-pulmonary tuberculosis, the death-rate for each type in 1925 being the lowest on record. The average rates from all tuberculosis in Bradford during the last five quinquennia have been 1·84, 1·65, 1·53, 1·46, and 1·05. The tuberculosis officer, Dr. H. Vallow, reports that patients taught new occupations at the training colonies have been unable to earn a living in the open market, and that the housing conditions of Bradford render the supply of shelters impracticable. From April 1st, 1917, until April 1st, 1925, the venereal diseases centre was carried on at the Bradford Royal Infirmary, but as the board of management could not spare the necessary accommodation any longer the centre has been moved to the municipal (St. Luke's) hospital, where adequate accommodation, with beds for indoor treatment, has been provided. Dr. Buchan thinks that the "private and confidential" conditions prevent adequate coöperation with the medical profession in carrying on the scheme, and that venereal disease could be better prevented from spreading if local authorities were empowered to obtain knowledge of infectious cases and insist on adequate treatment.

Figures show that the neonatal death-rate is declining although the improvement is small. More interest, however, is taken by women in the hygiene of pregnancy, and the fall in the mortality of early infancy will become more marked as knowledge is disseminated. In Bradford the midwives attended 76·9 per cent. of the registered births and sent for medical help in 13·5 per cent. of their cases. The total number of patients attending the antenatal centres was 489—just over 10 per cent. of the total births. The medical profession is paying more attention to this subject, says Dr. Buchan, but improvement in the attendances can only result from an increased desire amongst women for skilled supervision.

The number of new houses certified in 1925 was the highest for any one year in the records of the city—namely, 1509; of these 947 were municipal. The number of municipal houses under contract at the end of the year was 1281—1059 of the "A" type, 70 of the "A 2" type, and 152 of the "B" type. In addition to these there were 526 houses, mostly of a superior type, under private construction. In spite of this improvement, many very serious cases of overcrowding could not be dealt with owing to the scarcity of houses. At the close of the year the applicants for new houses numbered 4168, and of these 2715 were ex-Service men, 1617 of whom were living in apartments.

The diagram in the school report shows that Bradford provides every kind of special school. The outstanding feature of the dental work is the increased demand for treatment, which has resulted in the curtailment of the time given to inspection by the four dental surgeons. The work of the ophthalmic surgeon, Dr. W. Oliver Lodge, emphasises the importance of examining the eyes of young infants. More children at the pre-school age are coming under observation, and it is suggested that systematic examinations in infancy will in time secure the development of binocular vision endangered by errors of refraction, will prevent permanent squint, will enable myopia to be dealt with at the most favourable time, will prevent the onset of nystagmus, and will be helpful in the treatment of many other diseases of the eye. A complete scheme is now in operation for cases requiring orthopædic treatment, and Mr. F. W. Goyder is in charge of all such cases at the orthopædic clinic at St. Luke's Hospital, the Lister Lane School for physically defectives, and the surgical tuberculosis wards at Grassington Sanatorium. Children at Grassington requiring operation are transferred to St. Luke's, where a balcony has been put up for open-air treatment and artificial sunlight has been installed. Treatment may last three years, and when the disease has been arrested the children are transferred to Lister Lane School, where their subsequent progress can be watched.

Portsmouth.

Dr. A. Mearns Fraser, in his thirtieth report, tells us that, apart from the dockyard, one of the principal trades is stay-making, in which 1938 women are engaged. The building trades employ 3700, commerce nearly 11,000, and domestic service 10,200 women, whilst the military population averages 20,000. Southsea, the residential part of the town, has a reputation as a health resort from its mild winters and its sunshine record. During 1925 it came out third of the meteorological stations with 1923 hours of bright sunshine. Southsea common, with its 112 acres fronting the sea, was acquired by the corporation during the year.

Only 6 per cent. of the babies die in their first year of life, compared with 16 per cent. 30 years ago. During May an outbreak of scarlet fever affecting 63 persons was traced to ice-cream. This was made by a dairy company at one of its branches only and customers for milk from other branches were not affected. The infecting agent was apparently a boy who helped to make the ice-cream and who went on working up to the day the rash appeared, in spite of a sore-throat which he did not mention for fear of losing his work. One of the features of the outbreak was the short incubation period—a feature which has been noted by other observers in the case of milk epidemics. There were 47 cases of enteric fever with five deaths. Thirty years ago there were seldom less than 300 in the year and in 1900 there were over 1000 cases. Dr. Fraser is sure that the present number would be reduced if people could be persuaded not to eat shell-fish picked up on the seashore near the town. The case-fatality of encephalitis lethargica was high; out of 17 known cases there were nine deaths. Tuberculin is reported to give favourable results in eye affections and for glands and genito-urinary tuberculosis, and injections of collosol calcium have been found beneficial in a few cases, especially those with hæmoptysis. At the venereal diseases clinics irrigation facilities for gonorrhœa are provided daily, including Sundays, for men and women. The number of new cases at the clinics has averaged about 200 each year since 1917, except for the years 1919 and 1920, when the figures reached 342 and 319. The 50 beds at the Treloar Hospital, Alton, reserved for Portsmouth crippled children, have now been supplemented by five beds at Hayling Island. At the municipal maternity home 219 women were confined with one death. The antenatal clinic, conducted at the home, was attended by 589 patients. Plans have been drawn up for a new maternity home and child welfare centre combined. The Royal Naval Maternity Home makes provision for the families of men in the navy and marines, and during the year admitted 273 cases for confinement and conducted antenatal and child welfare clinics. About 65 per cent. of the total births were attended by midwives, who sent for medical help in some 27 per cent. of their cases. The collecting grounds of the town's water-supply are probably the northern downs of Hampshire, and attention is drawn to the possible contamination of this area by the erection upon it of numerous cottages and bungalows without proper drainage or means of refuse disposal. Overcrowding is still serious, and Dr. Fraser is of opinion that the facilities for persons with a very little capital to build for themselves under the Housing Act of 1925 are not enough known, and that the estate acquired by the council on Portsdown Hill is being insufficiently used for building purposes.

The public analyst's report shows that four out of 34 samples of Certified Milk, two out of 12 samples of Grade A (tuberculin tested), and five out of 53 of Grade A failed to pass the tests for their respective grades. The average retail prices of these three milks were 1*s.* 2*d.*, 8*d.*, and 7*d.* per quart respectively.

Oldham.

Dr. James B. Wilkinson says that the chief event of the year was the opening of the hospital part of Strinesdale Sanatorium. Ultimately there will be 56 beds for patients; at present, till the administrative part is renovated, there are only 42 beds. The patients are divided into two classes according as the sputum is positive or negative, and these are housed in separate parts of the building. Children are kept apart from adults and there are observation wards of one and two beds. A view of the new building forms a frontispiece to the report. Dr. Wilkinson shows how Oldham suffers from the smoke of its neighbours on the lower levels to the south-west, south, and south-east. He also points out that the permissible Oldham limit for its own smoke is a liberal one—viz., two minutes in the half hour for a chimney serving two boilers, three minutes for three boilers, and four minutes in the half hour for four or more boilers. He feels strongly that no great improvement will take place in the Oldham atmosphere till the endeavours made to form a smoke prevention district for south-east Lancashire are successful. The chief occupation is cotton-spinning, for which the damp climate is said to be favourable, as, it makes the fibres less liable to break. There are also two large firms making cotton machinery, which employ 20,000 people when working full time, and two coal-mines. The trades are not inimical to health, but there are a few cases

of spinners' cancer attributed to oil irritation, Dr. Wilkinson states, and careless exposure to the cold and damp atmosphere after working in hot mills may be responsible for some cardiac and pulmonary illness.

There are no maternity beds available except in the Poor-law hospital, and a scheme is on foot for acquiring a large house for a maternity home with a babies' hospital to be erected in the grounds. During the last five years the number of untrained midwives have fallen from 12 to three. During the past three winters series of lectures by consultants from Manchester and Liverpool and other places have been arranged for the midwives.

Formerly it was the practice for thrifty people to join building clubs and so erect their own houses, but lately the building of houses for the working class has been relegated to the council, although, Dr. Wilkinson says, there are still ample facilities for those with a few pounds in hand to build either through the coöperative stores or one of the remaining housing companies. There is a considerable shortage of houses and much moral, if not technical overcrowding, and a difficulty in getting unfit houses renovated owing to bad trade and the financial position of small owners of property.

Paisley.

Dr. G. V. T. McMichael points out that the Infectious Diseases Hospital is an old building requiring heavy expenditure on repairs and designed to deal with only three diseases; the erection of a modern fever hospital on the outskirts of the town must soon be faced. He lays emphasis on the value of hospital treatment of pneumonia, especially in view of present housing and economic conditions. Of 345 cases of acute primary and influenzal pneumonia 70 per cent. were admitted to hospital. The mortality at the Fever Hospital was 15·8 per cent., and at the Royal Alexandra Infirmary 16·4 per cent.; the mortality at home was 38·4 per cent. There were 44 notifications of ophthalmia neonatorum, mostly mild, but including six serious cases of gonococcal origin. One case, in which there was serious impairment of vision, was the subject of inquiry by the Scottish Board of Health. The other serious cases were referred at once to the Eye Infirmary, but this one was treated at home by the practitioner in whose practice it occurred, and was the first case of serious impairment of vision which has occurred in Paisley since 1918. The attendances at the antenatal clinic show an increase, and more of the mothers, especially the younger ones, ask for a complete examination early in pregnancy. The new cases numbered 255, more than one-eighth of the 1935 total births. The percentage of new babies brought to the centres whose weight was below normal was higher than in previous years, and this may be the result of the deplorable economic conditions. On the other hand, the cases of rickets numbered only 119, as compared with 180 in 1924. The number of antenatal cases admitted to the Barshaw Maternity Hospital was 168 and the number of confinements 333, the corresponding figures for 1924 being 124 and 296. Hospital treatment for diseases of pregnancy is always available at Barshaw, and this fact helps to promote the success of the antenatal work. There is a lack of accommodation for early cases of pulmonary tuberculosis and also for surgical tuberculosis in children, and a scheme is on foot to put up a county sanatorium of 110 beds at a cost of £76,000, which, it is hoped, will make good these deficiencies. Dr. Hugh C. Donald, of the venereal diseases clinic, reports striking results from the treatment of syphilis in women during pregnancy.

Progress is being made in housing, and Dr. McMichael is enthusiastic about the last two estates acquired by the council, on which it is proposed to erect 849 houses. The three municipal hospitals are supplied with Certified Milk, and about 16 gallons of this milk is retailed in the town. About one-third of the daily milk-supply is pasteurised and bottled at the Coöperative Creamery.

SCHOOL MEDICAL SERVICE.

Name of county.	No. on roll.	Av. elem. school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.‡
Hertfordshire ..	39,888	—*	14,055	—†	20·1
Northamptonshire ..	26,906	—*	7,940	2,508	24·6
Lincolnshire: Holland ..	11,130	9,635	2,997	1,686	14·0

* Not given. † No reinspections; 60 specials.
‡ Excluding dental defects and uncleanliness.

Hertfordshire.

Dr. H. Hyslop Thomson sums up the work of medical inspection which is carried out by 20 assistant school medical officers who are, for the most part, medical officers of health of their localities. This arrangement is in some ways advantageous, but unless a clear policy is laid down and close coöperation maintained among the assistants, the results of local inspection tend to be unequal. In this case, among other things, the various methods adopted locally for the prevention of the spread of infectious disease and for closure of schools appear to lack coördination, and the fact that no reinspections have taken place indicates that the system for following up cases cannot be altogether satisfactory. Arrangements are made by the county for treatment of tonsils and adenoids at local hospitals and for defective vision by local ophthalmologists, while an orthopædic scheme is now in active being. Only two minor ailment clinics exist in the county, most of this work being carried out by the district nurses. At present there is apparently only one dentist employed, but further dental aid is contemplated. No definite provision is made for mentally defective children, though the county runs an excellent residential school for the feeble-minded, and Dr. Thomson reports fully on the conduct and progress of this institution. In an inquiry on rural children who walk a long way to school and stay there for the midday meal, Dr. Thomson concludes that these children, while thinner than those who live near the school, are healthier and more resistant to catarrhs and infectious disease. He insists, however, on the necessity for ensuring that these children have their school meal in comfort.

Northamptonshire.

Dr. Charles E. Paget remarks on the increasing interest of teachers and parents in the school medical work, as shown by the presence of 69·6 per cent. of the parents at the inspections. Teachers weigh and measure the children, test their eyesight by Snellen type prior to the medical officer's visit, and report to the S.M.O. the steps taken by the parents to secure treatment. Arrangements are rapidly being made, varying in individual schools, for drying rural children's clothes, for supplying dry slippers and socks, and for providing warmth, shelter, and hot drinks for those children who have their midday meal in school. The council make no definite provision for treatment of tonsils and adenoids or for treatment of ear and external eye conditions. Minor ailment clinics are in being at Wellingborough and Rushden, otherwise this treatment is given by the district nurses. No mention is made of open-air classes or schools, and there is no special provision for mentally or physically defective children, and no supervision of the feeble-minded who are not attending school. Dr. Paget finds that 141 mentally defective and 108 crippled children are in attendance at elementary schools. A scheme for orthopædic treatment is now before the council.

Lincolnshire: Holland.

Dr. H. C. Jennings reports that medical inspection in the secondary schools has been undertaken for

the first time this year. The sanitary condition of town schools in the district is much better than that in the country areas, but even allowing for special conditions which exist in rural localities, much needs to be done if these schools are to be rendered structurally and hygienically sound. Dr. Jennings holds that no child under 7 years of age should be expected to read from books and that from 7 years onwards uniform standards of types, of which he gives specimens, should be used. A scheme for dental treatment, including a dental van, was to be in full operation in the early part of 1926. Minor ailment clinics are held in six of the most important schools, and the following up work is carried on by nurses. The treatment of visual defects is in the hands of a consultant ophthalmologist, but no arrangements are made by the council for treatment of tonsils and adenoids, nor is special provision made for mentally or physically defective children.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 9TH, 1926.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox 121 (last week 96); scarlet fever, 1851; diphtheria, 1186; enteric fever, 91; pneumonia, 634; puerperal fever, 55; puerperal pyrexia, 180; cerebro-spinal fever, 4; acute poliomyelitis, 46; acute polio-encephalitis, 5; encephalitis lethargica, 33; dysentery, 17; ophthalmia neonatorum, 141. There were no cases of cholera, plague, or typhus fever notified during the week. Only one case of small-pox was reported from the London area, the remainder, as before, from the counties of Derby, Durham, Lancaster (Ashton-in-Makerfield), Northumberland, Nottingham (one only), and Yorks, West Riding.

Deaths.—In the aggregate of great towns, including London, there was 1 (1) death from small-pox, 5 (0) from enteric fever, 6 (0) from measles, 3 (1) from scarlet fever, 22 (4) from whooping-cough, 36 (8) from diphtheria, 221 (49) from diarrhœa and enteritis under 2 years, and 36 (11) from influenza. The figures in parentheses are those for London itself. The small-pox death was of a case belonging to the Metropolitan Borough of Lambeth.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt. Comdr. O. D. Brownfield to be Surg. Comdr.

ROYAL ARMY MEDICAL CORPS.

Col. C. J. O'Gorman, late R.A.M.C., retires on retd. pay.

Lt.-Col. and Bt. Col. H. H. Norman, from R.A.M.C., to be Col.

Maj. M. F. Grant to be Lt.-Col.

Capts. D. G. Cheyne, P. A. Opie, S. Fenwick, G. W. Will, and D. C. Scott (Prov.) to be Majs.

Lt. (on prob.) H. McVicker, from the secd. list, is restd. to the estabt.

2nd Lt. R. A. M. Humphrey, from the Gen. List, Aberdeen Univ., O.T.C., to be Temp. Lt.

TERRITORIAL ARMY.

Capt. R. Errington to be Lt.-Col. and to command the 149th (Northumbrian) Field Amb.

Capts. J. A. C. Scott and A. C. M. Savege to be Majs.

Capt. (Prov.) E. R. Woodroofe is confirmed in his rank.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Col. J. W. Craven, from the Active List, to be Lt.-Col.

ROYAL AIR FORCE.

Squadron Leader B. F. Beatson is placed on the retired list at his own request.

Flight Lt. H. R. Peek (temp. Capt. Army, Dental Surgeon) relinquishes his temporary commission on return to Army duty.

INDIAN MEDICAL SERVICES.

Majs. B. E. M. Newland, O. A. R. Berkeley-Hill, W. L. Harnett, J. D. Sandes, A. H. Napier, G. Holroyd, D. L. Graham, E. B. Munro, J. A. S. Phillips, P. M. Rennie, and H. M. Inman to be Lt.-Cols.

Capts. J. B. de W. Molony, H. G. Alexander, Kanshi Ram Batra, Bawa Harkishan Singh, Pindi Dass Chopra, A. H. Harty, G. Shanks, and R. L. Vance to be Majs.

Correspondence.

"Audi alteram partem."

PASTEURISATION OF MILK.

To the Editor of THE LANCET.

SIR,—I thank your correspondents who have taken an interest in my letter of August 14th. The question may be brought roughly under three headings:—

(1) *Is general pasteurisation in the interest of the consumer?*—My contention is that pasteurisation as usually carried out is used to the advantage of the dairyman rather than of the consumer, and to support this view I stated that a dairy manager had informed me that he keeps pasteurised milk as long as 36 hours in his shop before sale and that this would be impossible if the milk were not pasteurised. On Sept. 30th I asked my wife to order an extra pint of fresh milk and one of pasteurised to be delivered early on the morning of Oct. 1st. These were kept for a matter of five and a half hours from 6.30 A.M. to noon, at a temperature rising from about 40° to 60° F., before a bacteriologist made counts on the samples. The results of the bacterial counts were as follows:—

Raw milk	100,000 per c.cm.
Pasteurised milk	3,450,000 ,,

Both samples contained gelatin-liquefying bacteria, the pasteurised being worse than the raw milk; it was hardly necessary under these circumstances to test for the colon bacillus. By 3 P.M. a colleague remarked to me that the pasteurised milk was beginning to smell sour, and it curdled long before the sample of raw milk.

In order to check these results on Oct. 6th I obtained further samples of fresh and pasteurised milk. After keeping for eight hours these gave the following bacterial counts:—

Raw milk	60,000 per c.cm.
Pasteurised milk	1,000,000 ,,

Both samples contained the colon bacillus. The fresh milk contained no preservatives.

I take it that Dr. Moore had his sample tested to find out that it was raw milk and not pasteurised, since I can assure him that most samples of milk purchased in the streets of London are pasteurised. I cannot agree with him that the presence of the colon bacillus denotes contamination with cow dung; it is suspicious and I should think, from my experience, that most samples of raw milk collected from country farms would contain it, but the streets are full of this bacillus and most milk delivered from a milk-can at street doors contains them.

As regards the safety of milk which has been pasteurised commercially Dr. C. G. Grulee, of Chicago, states ("Infant Feeding") that commercial low temperature pasteurisation is often carried out on bad milk and that the time of delivery after heating is so long that bacterial growth is very great. Magee and Harvey, of the Rowett Research Institute, Aberdeen,[1] state that pasteurisation improves low-grade cow's milk and makes it a marketable product for many hours after being milked, but it should be noticed that they specify hours and not prolonged keeping in a shop. If Dr. Moore had taken my two sentences together he would have read me as stating: "Pasteurised milk may go bad without curdling, if kept for any length of time. Curdling is still looked on as the signal of milk going bad . . ." and I added that the former sentence was not only an expression of my own experience, but also that of a dairy manager.

Dr. Moore calls my attention to the work of Ayers and Johnson, but the still more recent work of Prof. Orla-Jensen[2] shows that lactic acid bacteria, which survive low temperature pasteurisation, only grow slowly at low temperatures and that the milk so treated may eventually become worse if treated by high temperature pasteurisation. Prof. Orla-Jensen is professor of biochemistry in the Polytechnic

[1] Biochem. Jour., 1926, xx., 873.
[2] Dairy Bacteriology, translated by Arup, 1921, p. 85.

College, Copenhagen, and was formerly Director of the Swiss Experimental Dairy Station, and his translator is chief chemist to the English Margarine Works. As to the necessity for pasteurisation, it is well to remember that, a year or two ago, we were informed that dairymen and others could not comply with the report of the Departmental Committee on preservatives in cream and other articles of food, but they seem to be managing to toe the line. In many of the large American towns the standards for ordinary raw milk are 500,000 per c.cm. or even less, and it should be possible to emulate this standard generally in our country.

(2) *If pasteurised milk is to be sold ought not the public to be educated as to the difference between pasteurised and raw milk, or any other grade of milk?*—Even where people observe a small disc at the top of the bottle with the word "pasteurised" among a lot of other information, do they know or take the trouble to find out what it means? Prof. Kenwood, who is, I believe, a public analyst, inquires what the local health authorities are doing if dairymen do not know the difference between various grades of milk. Has he systematically been through his borough to find out whether they do? If he has, I think he is exceptional. I was told a few days ago by a shopkeeper that she stocks sterilised milk only, because it is simpler and also because her wholesaler, a sterilised milk company, informed her that sterilised milk was safest. Incidentally it may be of interest to know that the common test, to find out whether sterilised milk is good or bad, is to hit the bottom of the bottle before opening; if there is a hollow sound the milk is good, if not the milk is bad.

(3) *Is pasteurised milk equal to raw milk in quality?*—Dr. Moore says that it is not. I have to thank him for giving me, privately, the reference to Prof. Pierre Budin's statement concerning the antiscorbutic properties of sterilised milk. I would point out that this statement was made before the subject of vitamins was properly understood, and in connexion with such work Barnes and Hume[3] draw attention to the fact that it is never stated definitely whether all antiscorbutics have been excluded, while Dr. Grulee notes that as far as possible Budin used "wet-nurses." If we consult Budin's work, "The Nursling" (translated by Maloney), we find (p. 27) that for weakly infants the milk is made to trickle into their mouths directly from the nipple by exerting pressure upon it; (p. 50) that when an infant is born weakly it is either (*a*) entrusted to a wet-nurse, or (*b*) nourished by the mother herself; (p. 122) Budin explains his system of mixed feeding and comments on the fact that he was at first condemned by his medical colleagues for adopting such a course.

In the light of modern research it is obvious that Budin's belief in the antiscorbutic properties of sterilised milk cannot be accepted, though it is fair to note that he sterilised his milk under such conditions that air was excluded, and laid it down that the sterilised milk was only to be warmed in the bottles in which it had been sterilised before use. Prof. Plimmer has shown that re-heated pasteurised milk contains no antiscorbutic properties.

In reply to the question why, if we cook bread, vegetables, meat, &c., we may not cook milk, may I, with all respect, ask whether it is the custom to buy cabbage cooked or to cook it at home? The chief point I made in my former letter was that milk is largely used for the preparation of infants' foods in the home, and as such is cooked in the process. Nobody advocates the consistent double-cooking of their own food; why should we double-cook an infant's food?

Those interested in the feeding properties of pasteurised milk as compared with raw milk should refer to the valuable papers of Daniels and Stearn[4] and Magee and Harvey.[1]

I am, Sir, yours faithfully,

Oct. 9th, 1926. THOMAS MCLACHLAN.

[3] Biochem. Jour., 1919, p. 325.
[4] Jour. Biochem., 1924, lxi., 225.

HÆMORRHAGE ASSOCIATED WITH PERITONSILLAR ABSCESS.

To the Editor of THE LANCET.

SIR,—In your correspondence columns on July 17th (p. 149) Mr. A. J. Wright reported a case of severe hæmorrhage following spontaneous rupture of a peritonsillar abscess which he treated by dissecting out the tonsil and stitching up the fossa. I have for many years adopted this procedure in every case of peritonsillitis, slight or advanced, and have been uniformly pleased with results. I began by lifting off the anterior pillar to allow pus to escape in place of the usual incision. I then proceeded to finish the dissecting out of the tonsil, and for ten years have adopted this method for all enucleation cases. I use an elevator like the one figured in D. McKenzie's book. Where adhesions are very strong I use a long pair of slender scissors curved on the flat. For grasping the tonsil, nothing is so satisfactory as a blunt guillotine. I only resort to a volsellum for the preliminary stage when I cannot engage the tonsil with a guillotine.

In 34 years I have had only three cases of severe hæmorrhage, one in a child at the Children's Hospital, "primary," and overcome with artery forceps; one in a young adult at the Melbourne Hospital, a "partial" hæmophiliac, which gave us anxiety for months, and one in private, which occurred in an adult female, 36 years, which was also stopped with artery forceps. I had one death 30 years ago from inhalation of large blood clot, and I attributed it to the head dorsi-flexed position plus chloroform anæsthesia; a second death from ethyl chloride anæsthesia in a gross case of congenital syphilis; and a third in a case of peritonsillar abscess with septic laryngitis. This last case was a desperate one and occurred in a medical colleague.

I never use ligatures of any kind except in those rare instances where the posterior pillar has been badly torn or cut. I have no record of number of cases, but besides a large private practice I have been surgeon to four hospitals in Melbourne, and for some years did 40–50 cases a week, so I consider I must have done 30,000 cases at least.

I am, Sir, yours faithfully,

W. KENT HUGHES, M.B. Lond.,
Late Surgeon to Children's Hospital, Melbourne, and Clinical Surgeon to Melbourne Hospital, St. Vincent's Hospital, and Metropolitan Mission, Melbourne.

Sept. 10th, 1926.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.

To the Editor of THE LANCET.

SIR,—As there seems to be some misapprehension in the public mind as to the future policy of this hospital, I should like to explain that although the site and buildings have been sold to our next-door neighbours, the work of this institution has *not* been absorbed or taken over by Charing Cross Hospital. Owing to lack of accommodation, and the increasing demands upon its resources, this old and useful eye hospital, founded 110 years ago, is removing to a new freehold site which has been purchased by the governing body in Broad-street, W.C.2, upon which will be erected one of the finest and most up-to-date institutions of its kind in the kingdom. Tenders for construction of the new building will be received shortly, and it is hoped to commence building operations before the end of the year. In conclusion, I might add that one of the conditions of sale to Charing Cross Hospital was that possession would not be given until the new building is ready for occupation, so that our work of treating sufferers from injuries or diseases of the eye can be transferred to the new hospital without closing for a day. This transfer is expected to take place about the end of March, 1928.—I am, Sir, yours faithfully,

JOHN H. JOHNSON,
Secretary, Royal Westminster Ophthalmic Hospital, King William-street, West Strand, W.C.2.

Oct. 14th.

PRINCIPALS AND LOCUM TENENTS.

To the Editor of THE LANCET.

SIR,—Some misunderstanding appears to exist with regard to the protection which the two English defence societies afford their members when threatened with proceedings owing to the acts of locum tenents. The Council of the Medical Defence Union passed the following resolution on Jan. 21st, 1926:—

"That from and after the date of this resolution the Council may in its discretion assume responsibility for any claim made upon a member in respect of the act or omission of any registered medical practitioner, whilst temporarily employed as locum tenens for such member."

The Council of the London and Counties Medical Protection Society passed an identical resolution, and the position of the two societies in this respect is precisely the same.—We are, Sir, yours faithfully,

HUGH WOODS,
General Secretary, London and Counties Medical Protection Society, Ltd., Victory House, Leicester-square, W.C.

JAMES NEAL,
General Secretary, Medical Defence Union, Ltd., 49, Bedford-square, W.C.

Oct. 13th, 1926.

MENDELIAN VARIATION IN BACTERIA.

To the Editor of THE LANCET.

SIR,—Your annotation of Sept. 25th (p. 660) with this title raises four points which call for reply.

(1) You write: "Technically such experiments ought to begin with a single cell isolated with all the certainty which is available. Dr. Stewart seems to have taken no particular precautions about the purity of his cultures."

Burri's single cell culture to which you refer has been extensively tried in this class of research. Bernhardt[1] reports on it as follows: While we used Burri's single cell culture for the confirmation of our results in our first experiments on dysentery bacteria, we have at a later stage satisfied ourselves in agreement with the other workers, that we could achieve the same results by the usual methods of bacteriology (efficient dilution of the initial material, laying out a series of plates). We have, therefore, abandoned Burri's method, which is tiresome, a waste of time, and not always applicable. My technique has consisted of the usual methods of bacteriology outlined in this quotation.

(2) You write: "It is also necessary to assume non-viable recessives . . . . if mutabile on ordinary media is really a heterozygote."

But my argument is that mutabile will not segregate without the stimulus of the specific sugar, and therefore this assumption is not necessary.[2]

(3) Variations of the colon typhoid bacteria "have been discussed as examples of mutations, adaptive variations, acquired heritable characters . . . . Dr. Stewart gives another explanation."

I, on the contrary, consider Mendelian variation and mutation to be the same as adaptive variation and acquired heritable characters, all four arising from segregation of allelomorphs. The type of segregation studied in bacteria, which is best called restricted segregation, I consider to be related to gametic segregation in the following manner. In restricted segregation a single sharp-pointed external stimulus (e.g., lactose) impinges on one pair of allelomorphs only, and causes that pair alone to segregate in adaptation to the stimulus. In gametic segregation, on the other hand, a complex mass of external stimuli bears on the germ-cells, and causes segregation of many, if not of all, the allelomorphs. This mass of external stimuli consists of the hormones of the parent in their adult condition (senility in protozoa, see Calkins and Woodruff). Gametic segregation is possibly also adaptive and represents the reaction of the germ-cells to the maturity (senility) of the parent, reaction and adaptation being equal and opposite. Examples of restricted (= somatic) segregation are to be found not only in bacterial variation, but also in bud variation in higher plants and probably in acquired immunity to some diseases in higher animals, and in non-parasitic tumours.

(4) You write: "The theory as a whole rests on a slender basis, it postulates somatic segregation . . . . the production of recessive mutations by environment . . . . and non-viable dominants."

For a good example of somatic segregation in higher plants see the case of mosaic seed capsules in the hybrid between *Datura stramonium* and *D. lævis*.[3] *Non-viable dominants.*—Since writing the paper under review I have on one occasion found a homozygous dominant, paracolon, in subculture from a thoroughly purified heterozygote, mutabile.

I have almost completed a paper which elaborates and continues the subject under review.

I am, Sir, yours faithfully,

F. H. STEWART,
Major, I.M.S. (retd.).

Edinburgh, Oct. 11th, 1926.

*** It is obviously impossible to discuss briefly whether Dr. Stewart is right in considering Mendelian variation and mutation to be the same as adaptive variation and acquired heritable characters. In that proposition he raises one of the great biological problems, and we hope that his further researches will convince everyone that he has solved it.—ED. L.

[1] Ueber Variabilität pathogener Bakterien, Zeitschr. für Hygiene, 1915, lxxix., 241.

[2] See also Dobell, Jour. Genetics, 1912, ii., 343.

THE RELATION BETWEEN CANCER AND TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—In the annotation on this subject in your issue of Oct. 16th it is stated that Dr. T. Cherry, of Melbourne, recalled an observation made by Mr. W. R. Williams that when several members of a family had died of phthisis the survivors were very apt to die of cancer. As an insurance medical officer of several years' experience, and one who has had, therefore, great opportunities of studying many family histories, I have been frequently struck—prior to Mr. Williams's observation—by the concurrence of these two complaints in members of families at different ages. I have questioned whether the explanation is to be found in the fact of a mere coincidence or of the different age incidence of the two diseases, or whether possibly there is some deep real connexion between the two. As Mr. Williams stated, a further inquiry is needed.

I am, Sir, yours faithfully,

ARTHUR T. DAVIES,
Chief Medical Officer to the North British and Mercantile Insurance Co.

Oct. 18th, 1926.

EOSINOPHILIA AND ACIDOSIS.

To the Editor of THE LANCET.

SIR,—When views are imputed to an author by a misunderstanding of his book there is excuse to take note. In a notice of my book on Asthma (THE LANCET, Sept. 25th, p. 654) your reviewer says: "When the author discusses theory he often becomes too hypothetical, as when he suggests that the large number of eosinophil cells are present in asthma in order to absorb acid and so preserve the alkalinity of the blood." I did not suggest that these cells are present *in order to* absorb acid, but I did suggest that their presence in such number might be the *result* of the chloride shift known to occur in cases of acidosis. So far as I am aware no other explanation of eosinophilia has been given; at any rate, it is a feasible explanation and fits the case, for the degree of eosinophilia is in proportion to the persistence of the asthma and is an excellent guide to prognosis. I admit, however, that I am not conversant with the

[3] Darwin: Animals and Plants under Domestication, i., 392; and Bateson: Mendel's Principles.

relationship of acidosis to eosinophilia in diseased states other than asthma and characterised by eosinophilia. Certainly eosinophilia does not characterise epilepsy which Cuneo claims to be an acidosis, which, like him, I have known to be produced by faulty diet and hygiene similar to those which produce asthma, and which I have cured by *early* attention to those errors.

To one other point I may be permitted to refer. Your reviewer says that another writer asserts removal of polypi may make asthma worse. For a quarter of a century I have been removing polypi in cases of asthma and have never seen a case that was not benefited. Where a case seems to have been made worse your reviewer may be quite sure that it was not efficient operation that made the asthma worse. Efficient operation is often not easy and post hoc is not propter hoc. Greater folly than leaving polypi untreated in asthmatics it would be hard to conceive, but it may be a product of the present craze about anaphylaxis.

I am, Sir, yours faithfully,

Glasgow, Oct. 9th, 1926. JAMES ADAM.

*** The reviewer, while believing that he has nowhere misunderstood Dr. Adam, says that any suggestion on his part of a teleological cause for the phenomena was accidental.—ED. L.

ANÆSTHETICS IN UROLOGY.

To the Editor of THE LANCET.

SIR,—In the October issue of the proceedings of the Royal Society of Medicine, under the discussion on anæsthetics in urology, Dr. F. E. Shipway mentioned that "one of the anæsthetists at St. Peter's Hospital, being a Scotchman and not converted to modern methods, still used chloroform for his cases, and the resident medical officers had told the speaker (Dr. F. E. Shipway) that there was a distinct tendency to uræmia on the part of those patients, as compared with those who received spinal anæsthesia." I cannot compliment Dr. Shipway on the manner in which he refers to his colleagues at St. Peter's, but if it is a modern method of comparing his particular scientific work to that of others, I am content to remain old-fashioned. After remarking on the "tendency to uræmia" in the patients given chloroform, he says that those given ether tend towards bronchitis. Surely this is comparable to the layman's phrase, "a tendency to consumption." It would be interesting to know where the tendency ceases and the disease begins. Possibly Dr. Shipway has a tendency to exaggerate the importance of spinal anæsthesia in urinary surgery.

I am, Sir, yours faithfully,

Oct. 18th, 1926. J. D. SPEID SINCLAIR.

Obituary.

HENRY PORTER D'ARCY BENSON, M.D., F.R.C.P., F.R.C.S. EDIN.

NEWS has reached this country of the death of Dr. D'Arcy Benson at Kimberley on Oct. 6th. He had spent the last few years in South Africa because poor health prevented him working in the British Isles. Dr. Benson was the eldest son of the late Dr. John R. Benson, of Beer, in Devon, and was 59 years of age. He studied medicine at the Universities of Edinburgh and Melbourne and was for some time in practice at Gympie, becoming a member of the Queensland Legislative Assembly. Returning to this country he settled in practice at Pontrilas in Herefordshire, and later at St. Peter Port, Guernsey, where he lived for many years. Here Dr. Benson was able to devote some of his leisure to yachting, and in his 20-ton cutter made many cruises along the French and English coasts. In 1911, however, he had to leave his Guernsey practice owing to a breakdown in health which followed infection from a patient upon whom he was operating. He went to Ireland and became resident physician at Farnham House, a mental home in Dublin. Unfortunately, there also ill-health somewhat interfered with his activities, though during the late war he was able to accept a captain's commission in the Royal Army Medical Corps, acting as surgical specialist.

Dr. Benson married, in 1892, the daughter of Mr. S. H. Gabriel, of Calne, in Wiltshire. She survives him with four sons, two of whom—Dr. John Benson and Dr. Wilfred Benson—are members of the medical profession. All four sons saw service in the war.

WALTER THOMAS BEEBY, M.D. ST. AND., M.R.C.S. ENG.

THE death took place in London on Sept. 29th of Dr. W. T. Beeby in his eighty-fifth year. Dr. Beeby was a student of Guy's Hospital, where he was later house surgeon. He graduated as M.D. at the University of St. Andrews in 1862 and three years later went into practice at Bromley in Kent in partnership with the late Mr. J. W. Ilott. On Mr. Ilott's retirement and after his death he continued in practice with his son, Dr. H. J. Ilott. It was largely owing to Dr. Beeby's influence that the Bromley Cottage Hospital was founded in 1869, and he was the first medical officer. The hospital was at first very small, but has since been much enlarged and rebuilt, and is now a well-equipped institution with over 40 beds, having a large staff both of local medical men and of London consultants. Dr. Beeby left England in 1898 and went to live at Rapallo on the Italian Riviera, where he practised for seven years among English visitors and residents and where he had much to do with the building of the English Church of St. George. Later he gave up all medical work and went to live during the winter and spring months at Levanto, further along the coast. Dr. Beeby had a taste for architectural and antiquarian research and was the author of a paper on the Church and Manor of Bromley, and of a little book on the Parish Church.

He married, in 1879, Miss Constance Emily Finley, daughter of the Rev. John Finley, who survives him.

CHARLES STENNETT REDMOND, M.D. N.U.I., L.R.C.P.I.

THE death took place on Oct. 13th of Dr. C. S. Redmond in his eighty-fourth year. He was educated at the Catholic University of Dublin and practised in Manchester from 1900 to 1909, latterly residing at Popefield, Queen's County. The subject of dietetics always interested him and in the district of Manchester where he worked he gave many interesting lectures on food, being a strong believer in the need for educating the public in this subject. In the last part of the war he worked as resident medical officer at the Trafford Hall Red Cross Hospital. The National University of Ireland conferred on him the honorary degree of M.D. in 1915. Dr. Redmond was succeeded in his Manchester practice by his son, Dr. C. H. S. Redmond.

ROBERT PARRY, J.P., M.B. LOND.

Dr. Robert Parry, who died on Oct. 12th, was 71 years of age, and had been in practice at Carnarvon for 43 years. He studied medicine at Owens College, Manchester, and at Guy's Hospital, qualifying as M.R.C.S. in 1879. On going into general practice he became surgeon to H.M. Prison at Carnarvon, medical

officer to the local infirmary, and police surgeon. He took a keen interest in medical and public affairs, and was at one time president of the North Wales branch of the British Medical Association. He entered the town council four years after settling in Carnarvon and remained a member of it till the end of his life. Dr. Parry's fellow citizens showed their appreciation of his work by electing him alderman and mayor in successive years and by making him a freeman of the borough. He was also justice of the peace for the county. He leaves a widow, three sons, and two daughters.

REOPENING OF THE WELLCOME HISTORICAL MEDICAL MUSEUM.

THE rearranged Wellcome Historical Medical Museum was opened on Oct. 14th by Sir Humphry Rolleston, who expressed in his opening remarks the founder's regret at being prevented by philanthropic work in America from receiving his guests personally. Sir Humphry Rolleston referred to the great value of the collection and to the debt we owe to those who have worked to forward the study of medical history in this country.

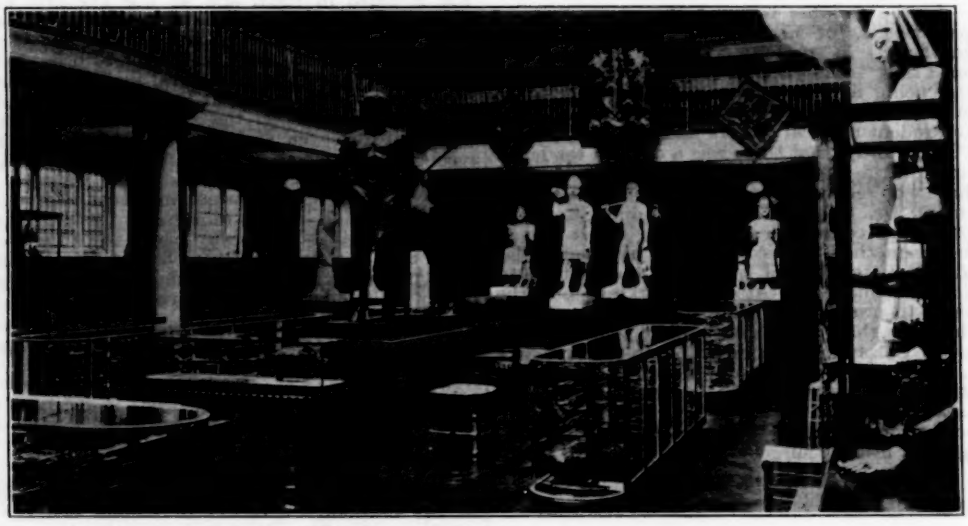
The Opening Address.

Sir ARTHUR KEITH then delivered an address on "What Museums Should do for Us." He began by showing that geologists in the last century had written the history of the earth, and also of the animals that inhabited it, on their museum shelves, and that history was coming more and more to be written in this way. Pitt-Rivers was the patron saint of curators, and what he had done for human culture in general Mr. Wellcome had done for medicine. The difficulty of illustrating the evolution of medicine by a museum was that, whereas a geological collection illustrated facts, a medical collection had chiefly to illustrate fancies. Primitive medicine and its apparatus were a logical outcome of primitive beliefs based on speculations about the human spirit. No one who studied history intelligently could fail to realise that Mr. Wellcome's Hall of Primitive Medicine, with its totems, fetishes, and mascots, was the primitive counterpart of the stethoscope and the bismuth meal, but having an inner significance which modern apparatus had not. Even educated people still treasured mascots, preferred quacks to qualified men, and believed in spirits. The primitive stage was not yet over. The function of a museum was to foster knowledge, and the money invested in it bore fruit in leaders and teachers. It must be more than a storehouse of material for students; its staff must be students themselves, permeated with the love of knowledge and knowing how to extend it. Besides being active members of learned societies they must give direct education, which needed much discrimination and the art of the window-dresser. Finally, by helping poor men to produce great work, museums were a worthy use of wealth in the service of the community.

Sir FREDERICK KENYON, director of the British Museum, and Sir D'ARCY POWER proposed and seconded a vote of thanks to Sir Humphry Rolleston. A vote of thanks to the founder was proposed and seconded by Mr. W. G. SPENCER, President of the Section of Medical History (Royal Society of Medicine), and Dr. J. D. COMRIE, lecturer in medical history to the University of Edinburgh. It was carried with enthusiasm and acknowledged on behalf of the founder by Dr. C. M. WENYON, director in chief of the Wellcome Bureau of Scientific Research.

The New Museum.

The Wellcome Museum contains a large and well-chosen collection of rare objects, pictures, sculptures, manuscripts, early printed books, &c., illustrating the evolution and practice of medicine and its allied sciences throughout the world in all ages. Founded in 1913 and steadily enlarged since, the museum has no exact counterpart in this or any other country. The exhibits have now been arranged in new cases with superimposed glass shelves, which allow more objects to be shown in the space allotted without overcrowding. No description could convey what a student may learn by spending five minutes—or five hours—in the Italian or Turkish drug shop, and the Primitive Section is a deeper essay in human psychology than was ever printed. A number of additions have been made to the portraits of famous men, to the charming little pomanders and scent-bottles, and to many other sections, and the most interesting new exhibit is the "Lister Ward," reconstructed from the actual Glasgow material and fitted with the original equipment. Personal relics of Lister displayed near by include his academic robes, diplomas, and research apparatus, and the carbolic sprays he used when he first introduced antiseptic surgery.



Wellcome Historical Medical Museum. (*Copyright.*)

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a quarterly meeting of the Council on Oct. 14th Sir Berkeley Moynihan, the President, reported that the Supplementary Charter which had been approved by the King in Council on July 26th had been duly received. The annual report of the Council to be presented to the Fellows and Members at the annual meeting on Nov. 18th was approved and will be circulated. The President also reported that the Thomas Vicary Lecture on the Significance of Anatomy will be delivered by Prof. G. Elliot Smith on Thursday, Nov. 4th, at 5 P.M.; and that the Bradshaw Lecture on Reconstructive Surgery of the Hip-joint will be delivered by Prof. Ernest W. Hey Groves on Thursday, Nov. 11th, at 5 P.M.

Mr. Kenneth Swire Southam, late of Epsom College, was nominated as the thirty-fourth Jenks Scholar.

The diploma of Fellow was conferred upon John Lewin, of Guy's Hospital.

Diplomas of Member were conferred upon the following:—

Winifred M. de Kok, Cape and Royal Free; T. C. Hunt, Oxford and St. Mary's; S. M. Mallick, Lahore and Guy's; A. W. L. Row, Oxford and St. Bart.'s; H. Smith, Cambridge and St. George's; Karin Stephen, Univ. Coll.; H. Syed, Bombay and King's Coll.; and J. G. T. Thomas, Cambridge and St. Mary's.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The annual dinner will be held at the Piccadilly Hotel, London, W. 1, on Thursday, Nov. 18th, at 7.10 for 7.30 P.M. Ladies are invited. Members are asked to give early notice to the executive secretary of their intention to be present.

NORTH-WESTERN TUBERCULOSIS SOCIETY.—The opening meeting of the new session will be held at the tuberculosis offices, Joddrell-street, Hardman-street, Deansgate, Manchester, on Thursday, Oct. 28th, at 3.15 P.M., when Dr. Alfred Adams, medical superintendent, Liverpool Sanatorium, Delamere, will give his presidential address on Tuberculosis: the Prospect.

ROYAL INSTITUTION.—On Tuesday, Nov. 2nd, at 5.15 P.M., Mr. G. W. C. Kaye, D.Sc., will deliver the first of three lectures on the Aconstics of Public Buildings, and on Tuesday, Nov. 23rd, Sir William Bragg will begin a course of four lectures on the Imperfect Crystallisation of Common Things. On Thursday afternoons, beginning on Nov. 4th, there will be two lectures by Sir Edgeworth David on Antarctic Exploration Past and Future; three by Dr. R. R. Marett on the Archæology of the Channel Islands, and two by the Editor of THE LANCET on Early Medical Literature (Dec. 9th), and Medical Literature in Relation to Journalism (Dec. 16th). The Juvenile Lectures will be delivered by Prof. A. V. Hill on Nerves and Muscles: How We Move and Feel. They will begin on Dec. 28th.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Practitioners interested in the series of lectures on Emergencies in Medicine and Surgery should note that Mr. Herbert J. Paterson will lecture on Monday, Oct. 25th, on Gastric Hæmorrhage and Perforation of Ulcers, and that on Thursday, Oct. 28th, Mr. Arthur Cheatle will lecture on Emergencies in Aural Disease. The lectures will be delivered in the Lecture Hall of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., at 5 P.M. On Friday, Oct. 29th, at 5 P.M., at the Royal Westminster Ophthalmic Hospital, Charing Cross, Mr. C. L. Gimblett will give a lecture-demonstration on the Investigation of Visual Fields. Both lectures and demonstration will be open to members of the medical profession, without fee. During November a course in Venereal Disease will be given at the London Lock Hospital. From Nov. 15th to Dec. 4th a course in gynæcology and diseases of children will be available at the Royal Waterloo Hospital. Special reference will be made to endocrine deficiency, to diseases of the blood, thyroid, breast, and stomach, and to gynæcological diagnosis. The St. John's Hospital will hold a clinical course, with bi-weekly lectures in dermatology, from Nov. 15th to Dec. 11th. If desired a course in pathology can also be arranged. From Nov. 22nd to 27th there will be a week's course in Rectal Diseases at St. Mark's Hospital. For those who have little time at their disposal there are two late afternoon courses: from Nov. 1st to 13th, 4.30 to 6 P.M., a course in general medicine, surgery, and the specialties at the Hampstead General Hospital; and from Nov. 22nd to Dec. 18th a series of lecture-demonstrations on selected neurological cases in the West End Hospital, 73, Welbeck-street, London, W., at 5 P.M. Copies of all syllabuses, of the General Course Programme, and of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

UNIVERSITY OF WALES.—In the second part of the examination for the diploma of public health Dr. Doris Williams has satisfied the examiners.

Messrs. Cassell and Co. announce the publication of "X Ray Diagnosis: A Manual for Surgeons, Practitioners, and Students," by Mr. J. Magnus Redding, senior surgical radiologist to Guy's Hospital. It is illustrated with 224 skiagrams from Mr. Redding's collection.

MEDICO-LEGAL SOCIETY.—A meeting will be held at 11, Chandos-street, Cavendish-square, W. 1, on Thursday, Oct. 28th, at 8.30 P.M., when a paper will be read by Dr. John Glaister, Jun., on the Results of Recent Experimental Work upon the Serological or Precipitin Test for the Detection of Blood, considered from the Medico-Legal Aspect. A discussion will follow. Members may introduce guests on production of a member's private card.

UNIVERSITY OF BRISTOL.—The annual dinner of the Association of Alumni (London branch) will be held at the Hotel Cecil, Strand, on Friday, Oct. 29th, at 7.30 for 7.45 P.M. Lord Haldane will preside, and Dr. T. F. Sibly, principal officer of the University of London, will be the guest of the evening. The dinner will be followed by dancing. Application for tickets may be made to Dr. Elizabeth Casson, Holloway Sanatorium, Virginia Water.

UNIVERSITY OF EDINBURGH: A NEW CHAIR.—Lord Woolavington has given £10,000 towards the foundation of a chair of animal breeding at the University. The gift follows on an announcement by the Rockefeller International Education Board of a grant of £30,000 for the extension of the animal breeding department of the University, on condition that a similar sum was obtained in this country (vide THE LANCET, August 14th, p. 341). The director of the department is Dr. F. A. E. Crewe.

TRIBUTE TO THE LATE DR. ADAMI.—The Council and Senate of the University of Liverpool have held special meetings to put on record their profound regret at the death of the Vice-Chancellor, Dr. J. G. Adami, and a special commemoration service, held at the Liverpool Cathedral on Oct. 15th, was attended by a large and representative congregation from the University, City and adjacent towns.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION. This association has issued a syllabus for the winter session containing information about courses of lectures and demonstrations and arrangements for the appointment of clinical assistants. Copies of the syllabus may be had from the Secretary of the Association at the University, Glasgow.

IRISH PUBLIC HOSPITALS AND MEDICAL FEES.—The Irish Minister of Local Government and Public Health has given his decision on the facts brought out in the recent sworn inquiry in County Clare into the practice of charging medical fees to certain patients admitted to the public hospitals (THE LANCET, Sept. 25th, p. 676). The Minister finds that a demand was made for fees in two cases by Dr. T. E. O'Connor, medical officer in charge of the Raheen Hospital. He states that Dr. O'Connor appeared to rely for justification on regulations adopted by the County Board of Health for the admission of paying patients, but he points out that these regulations could not become effective without the Minister's approval, and such approval had not been given. While the Minister "takes a very serious view of Dr. O'Connor's action," he does not propose to take any disciplinary steps. He adds some paragraphs explaining the present position as regards the admission of paying patients to county institutions: "The hospitals provided under the county scheme," he states, "are intended for persons eligible for relief, and the officers of these hospitals are employed and paid by the Board for the purpose of giving their services gratuitously to the persons eligible for relief admitted to those hospitals." Article 42 of the General Regulations provides that "no officer appointed by the Board of Health shall be entitled to demand, receive or accept any fee or payment from any person in receipt of assistance . . . . Power is given to the Board to admit persons who are not eligible for relief to the hospitals, subject to such regulations and conditions as to payment by and accommodation for such persons, or otherwise, as may be approved by the Minister." The medical officers, he says, have not power to regulate the admission of any class of patients to the hospitals, and in the absence of regulations approved by the Minister there is no legal authority under which private patients can be admitted to the hospitals, and the medical officers are not authorised to demand, receive, or accept any fee or payment from any patient treated in the hospitals. It is to be noted, writes our Irish correspondent, that the Minister refrains from any expression of opinion on the propriety of the admission of paying patients, and of allowing the medical officers to charge fees. He deals only with the legal position as it affects County Clare at the present moment. It appears that it is illegal either to admit paying patients or to charge them fees.

Dr. A. D. Macdonald has been appointed lecturer in experimental physiology at the Victoria University of Manchester.

SERVICE HOSPITALS AT PORTSMOUTH.—Arrangements have been made for the reception into the Royal Naval Hospital at Haslar of cases from Army and Air Force units. The Alexandra Hospital, now given up by the Army, has been taken over by the Ministry of Pensions, although an attempt was made to secure it for the use of the city as an adjunct to the Royal Portsmouth Hospital.

GUILD OF ST. LUKE.—The annual service of the Guild was held in Westminster Abbey on Oct. 17th. So large was the congregation that many had to stand throughout the service. Members of the Guild, in academic robes and headed by their banner, formed a procession which preceded that of the choir and cathedral clergy. The lesson was read by the Rev. H. Kirkland-Whittaker, M.B., secretary to the Guild, and the preacher was the Rev. Canon Sopwith, vicar of Maidstone, who took as his text, "The Beloved Physician." Before pronouncing the blessing the Dean of Westminster read the special collect of the Guild.

BIRMINGHAM HOSPITALS: AN IMPORTANT GIFT.—In connexion with the scheme for equipping Birmingham with a hospital centre, Messrs. Cadbury Brothers, Ltd., have offered to give the city about 150 acres of land adjoining the University. It is suggested that the whole of the land shall become the property of the city on the understanding that the council, in consultation with the Hospitals Council for the City of Birmingham, shall select and reserve for hospital purposes about 100 acres of the land and grant long leases to the hospital authorities at nominal rents. It is hoped that the remainder of the land will be used for playing fields. Messrs. Cadbury have offered £5000 as a donation towards the expenses of the city council in acquiring and dealing with the site.

THE Council dinner of the British Medical Association was held at the House of the Association on Wednesday, Oct. 13th, when Sir Robert Bolam presided over a large gathering. The toast list made opportunity for a series of pleasant speeches, most of which were brief, by definite instruction from the chair. Dr. J. A. Macdonald proposed the health of the retiring President, Dr. F. G. Thomson, who refused in his reply to consider what had been termed his "swan-song" as implying cessation of activity in Association matters. Dr. C. O. Hawthorne spoke amusingly to the toast of the "Common Health," which he coupled with the name of the Director-General of the Army Medical Service, Sir Matthew Fell. Dr. Arnold Lyndon proposed the health of "The Guests," when replies were made by Commander Hilton Young, M.P., and Sir Martin Conway, M.P., the former of whom made entertaining allusions to his position as the one lay member of the General Medical Council. The health of the Chairman was proposed by Dr. E. R. Fothergill.

MEDICAL GOLFING SOCIETY.—The autumn meeting was held at Littlestone Golf Club on Oct. 17th and 18th in good weather. C. V. MacKay won the Max Page Prize (singles *v.* bogey) after a tie with Herdman Porter. H. W. Carson and A. E. Mortimer Woolf won the foursomes *v.* bogey with 1 down. The following tied for second place with 2 down: G. Dawson and J. D. O'Keefe; T. P. Kolesar and W. R. Bristow; L. Bromley and H. Chapple; P. Gosse and A. Hope Gosse; H. C. Apperley and E. A. Hardy. The Canny Ryall Cup was won by Harold Chapple with the score of 85 − 15 = 70. C. Max Page (80 − 6) and V. E. Negus (85 − 11) tied at 74 for second and third places. A. Scott Gillett was fourth with 86 − 11 = 75. The best scratch score (74) was done by T. P. Kolesar.

The *Ladies Medical Golfing Society* will hold their autumn meeting at Walton Heath Golf Club on Oct. 26th.

SMALL-POX IN SOUTH SHIELDS.—In regard to the fatal case of small-pox reported last week in South Shields county borough, the medical officer of health, Dr. W. Campbell Lyons, inform us that the patient had been under medical care for about four months and was an "old clothes" dealer. A rash appeared on Sept. 16th, but was not notified to him until the 20th, when the woman was removed to hospital. The case was one of confluent small-pox with large hæmorrhagic bullæ on the back of the hands and the loins. On the parts of the skin which were not covered with small-pox spots, there was a peculiar petechial rash. As the case was from a very unhealthy quarter of the town, a Weil-Felix reaction was done but proved negative 1 in 20. The Wassermann reaction was strongly positive. The patient had a mitral and aortic lesion and atheroma, and developed hypostatic pneumonia two days before she died. Several cases of small-pox had occurred in the neighbourhood, and while the primary source of infection has not yet been established, Dr. Lyons has no doubt that this fatal case had been in contact with one or other of the former cases.

NAVAL MEDICAL COMPASSIONATE FUND.—At a meeting held on Oct. 19th, Surgeon Vice-Admiral Sir Joseph Chambers in the chair, the sum of £114 was distributed among the several applicants.

ROYAL SANITARY INSTITUTE.—The thirty eighth congress of the Institute will take place next year at Hastings from July 11th to 16th. At an exhibition held in connexion with it there will be displayed appliances for housing and general sanitation and other matters relating to health and physical welfare. Information may be had from the secretary of the Institute at 90, Buckingham Palace-road, London, S.W. 1.

COOMBE HOSPITAL CENTENARY CONGRESS.—An international gynæcological and obstetrical congress was held in Dublin recently to commemorate the centenary of the Coombe Lying-in Hospital (vide THE LANCET, Sept. 25th, p. 673). The papers read at the congress are to be published by the *Irish Journal of Medical Science* and may be ordered from the circulation manager of that journal at Parkgate Printing Works, Dublin (price 5*s.* 6*d.*, including postage).

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—The following awards have been made:—

Senior Scholarship for General Clinical Studies, Todd Prize for Clinical Medicine, Special Prize for Diseases of Children and for Orthopædic Surgery: F. Goldby, M.R.C.S., L.R.C.P., Jelf Medal, awarded annually on the Senior Scholarship Examination to the Candidate who is second in order of merit: A. W. Kendall, M.R.C.S., L.R.C.P. Burney Yeo Scholarship: R. G. Macbeth, B.A., Oriel College, Oxford. Burney Yeo Scholarship (Honorary): T. K. Lyle, B.A., Sidney Sussex College, Cambridge. Burney Yeo Exhibition, F. C. Mayo, B.A., Pembroke College, Cambridge. Burney Yeo Exhibition: C. R. L. Orme, B.A., Sidney Sussex College, Cambridge. Raymond Gooch Scholarship: S. R. C. Price, B.Sc., King's College, London. Tanner Prize for Obstetric Medicine: A. P. Ross. Special Prize for Diseases of Children: J. L. Newman, B.A. Special Prize for Orthopædic Surgery: H. L. C. Wood.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—The opening meeting of the session was held at the British Medical Association House on Oct. 12th, when the proceedings opened with the induction of the new president, Miss Elizabeth Bolton, into the chair, by Dr. Christine Murrell, the retiring president. After a vote of thanks to Dr. Murrell for her services, the meeting proceeded to business. Reports were presented from the sub-committee on menstruation and from the sub-committee on cancer research, and other business was discussed. Miss Bolton then delivered her presidential address, choosing for her subject Some Aspects of Disease of the Cæcum. She dealt with the subject mainly from the points of view of diagnosis and the results of operative treatment, first discussing carcinoma of the cæcum, with illustrative case records, and then going on to describe a variety of rarer conditions often difficult to differentiate from malignant disease. Among these were actinomycosis of the cæcum, inflammatory masses associated with chronic appendicitis, fibro-lipomatous polyp of the bowel complicated by torsion of an ovarian fibroma, and chronic appendicitis associated with ovarian fibroid. These were all illustrated by cases and by a series of slides and museum specimens. The results of operation were uniformly good, she said, in the non-malignant cases. A short discussion followed.

MEDICAL SICKNESS AND LIFE ASSURANCE.—The annual general meeting of the Medical Sickness Annuity and Life Assurance Society, Ltd., was held at the offices of the company, Lincoln House, 300, High Holborn, London, W.C. 1, on Oct. 11th, Dr. F. J. Allan in the chair. In his opening remarks the Chairman said that allowing for incidental variations the figures showed steady increase of membership year by year; the benefits accruing to members under sickness and accident policies were the best obtainable, and the directors had decided to give even greater benefits, to apply to both existing and new policies. Members going on holiday in certain countries for a period not exceeding three months would remain covered without payment of any extra premium, and the directors always took a sympathetic view of cases in which, perhaps, the requirements under the rules had not been strictly complied with. The reason why the amounts paid out had not increased in the same proportion as the membership was chiefly the careful medical examination of proposers. He regretted, he said, that Dr. David Forsyth, who had acted as the medical adviser of the society since 1920, had found it impossible to continue to act for the society, which had therefore secured the services of Dr. A. Hope Gordon in his stead. During the last year the sums insured in life assurance had been for lower amounts; this was attributable to the effect of the general depression caused through the coal strike. Dr. F. J. Allan and Mr. W. H. Dolamore, M.R.C.S., were re-elected directors.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MONDAY, Oct. 25th.—8 P.M., ODONTOLOGY. Mr. J. B. Parfitt: Presidential Address. Paper: Mr. C. A. Wakeford: Some Observations on the Tooth Band and on the Enamel Organs of the Human Deciduous Teeth.
TUESDAY.—5 P.M., MEDICINE. Clinical meeting at Guy's Hospital. Tea will be served in Mary Ward at 4.45 P.M. Cases and demonstrations.
WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Sir D'Arcy Power: Presidential Address.
THURSDAY.—8.30 P.M., UROLOGY. Mr. W. Girling Ball: Some Anatomical Factors in Urinary Affections.
SATURDAY.—STUDY OF DISEASE IN CHILDREN. Provincial meeting (postponed from last session) at the Children's Hospital, Ladywood-road, Birmingham. Train from Paddington (restaurant car) 11.10 A.M. Reduced first-class return fare 23s. 1d. Those requiring tickets should write to Dr. Neill Hobhouse (18, Harley-street, W.) by midday, Thursday, Oct. 28th.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Oct. 25th.—8 P.M., Clinical meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
MONDAY, Oct. 25th.—5 P.M., Mr. C. E. Shattock: Surgical Conditions of Blood-vessels.
FRIDAY.—5 P.M., Sir Arthur Keith: Specimens illustrating Disorders in the Growth of Bone. (Demonstrations open to advanced students and medical practitioners.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 25th, to SATURDAY, Oct. 30th.—FELLOWSHIP OF MEDICINE (Special Lectures), Medical Society of London, 11, Chandos-street, Cavendish-square, W. Mon., Oct. 25th, Mr. H. J. Paterson: Gastric Hæmorrhage and Perforation of Ulcers. Thurs., Mr. Arthur Cheatle: Emergencies in Aural Disease.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Charing Cross. Fri., 5 P.M., Mr. Gimblett: Special Lecture-Demonstration on Investigation of Visual Fields.—COMBINED COURSE IN DISEASES OF CHILDREN, Paddington Green, Victoria Hospital and Children's Clinic. All-day course.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Post-graduate course in gynæcology. Operations, demonstrations, and lectures.—ST. PETER'S HOSPITAL, Henrietta-street, W.C. Clinical course in genito-urinary diseases, including cystoscopies and formal lectures. The lecture at the Medical Society and the demonstration at the Royal Westminster Ophthalmic Hospital are free to members of the medical profession without fee. Further information from the Secretary of the Fellowship of Medicine.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, Oct. 25th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 12 noon, Mr. Simmonds: Fractures and Applied Anatomy. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
TUESDAY.—12 noon, Dr. Burrell: Demonstrations of Chest Cases. 2 P.M., Mr. Addison: Operations. 2 P.M., Mr. Sinclair: Surgical Out-patients.
WEDNESDAY.—10.30 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards. 2 P.M., Dr. Owen: Medical Out-patients.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 2 P.M., Mr. Simmonds: Surgical Out-patients. 2 P.M., Mr. Bishop Harman: Eye Dept.
FRIDAY.—10 A.M., Sir Henry Simson: Gynæcological Operations. 10.30 A.M., Dr. Dowling: Skin Dept. 2 P.M., Mr. Vlasto: Throat, Nose and Ear Dept.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Dept. 10 A.M., Dr. Saunders: Medical Diseases of Children.
Operations, Medical and Surgical Out-patients, Special Departments, daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Oct. 25th.—2 P.M., Medical Cases in the Wards. 2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.
WEDNESDAY.—2.30 P.M. to 5 P.M., Medical Skin and Eye Clinics. Operations.
THURSDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.
FRIDAY.—2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.
On Monday, Oct. 25th, and Friday, Oct. 29th, at 2.30 P.M., there will be special demonstrations of gynæcological cases and medical cases (children) by Mr. Aubrey Goodwin and Dr. Bruce Williamson respectively.

POST-GRADUATE HOSTEL, Imperial Hotel, Russell-sq., W.C.
MONDAY, Oct. 25th.—9 P.M., Discussion: Colour Vision and Colour Blindness, opened by Prof. Roaf.
THURSDAY.—9 P.M., Symposium: The Filled Dead Tooth as a Source of Streptococcal Blood Infection. Open discussion. Dinner 8 P.M. 5s.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Oct. 26th.—5 P.M., Dr. H. W. Barber: Immunity and Anaphylaxis.
THURSDAY.—5 P.M., Dr. W. Griffith: Principles of Treatment. General.

NATIONAL HOSPITAL, Queen-square, Bloomsbury, W.C.
MONDAY, Oct. 25th.—2 P.M., Dr. Hinds Howell: Out-patient Clinic. 3.30 P.M., Dr. Kinnier Wilson: Cerebellar Syndromes.
TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Hinds Howell: Muscular Atrophy.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Riddoch: Some Sequelæ of Encephalitis Lethargica.
FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Collier: Peculiar Maladies of the Fifth and Seventh Cranial Nerves, Neuralgia, Hemiatrophy and Spasm.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street.
THURSDAY, Oct. 28th.—4 P.M., Dr. Frew: Mental Deficiency.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Oct. 27th.—4 P.M., Prof. L. P. Abercrombie: Town and Regional Planning in its Effects upon the Distribution of the Population.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Oct. 26th.—4.15 P.M., Dr. J. Wharton: Eye Cases.
FRIDAY.—4.15 P.M., Dr. Archibald Donald: Uterine Cancer.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS
FRIDAY, Oct. 29th.—3.30 P.M., at the Royal Infirmary: Prof. Connell: Lesions of the Vertebral Column.

ST. MARGARET'S HOSPITAL FOR WOMEN, Acomb-street, Whitworth Park, Manchester. Post-Graduate Lectures.
WEDNESDAY, Oct. 27th.—4 P.M., R. R. Kerr: The Diagnosis and Treatment of Abdominal Tuberculosis in Young Girls.

ANCOATS HOSPITAL POST-GRADUATE COURSE.
THURSDAY, Oct. 28th.—4.15 P.M., Mr. Harry Platt: Treatment of Common Injuries.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.
TUESDAY, Oct. 26th.—4 P.M., Prof. John Shaw Dunn: Disturbance of Renal Function in Experimental Nephritis. Discussion to be opened by Dr. A. Rowand.

Appointments.

MACDONALD, A. D., M.B., Ch.B. Edin., has been appointed Lecturer in Experimental Physiology in the University of Manchester.

STEELE, RUSSELL V., M.B., B.S. Durh., Medical Officer to School for the Blind, Swiss Cottage, N.W.

SUDLOW, G. W., M.B., B.S. Lond., Certifying Surgeon under the Factory and Workshop Acts for the Hanley District of the County of Stafford.

Manchester Royal Infirmary: Caithness, J. F., M.B., Ch.B. Vict., Shepley, W. H., M.B., Ch.B. Vict., Keddie, J. T. C., M.B., Ch.B. Vict., Whitley, J. T., M.B., Ch.B. Vict., House Physicians; Pendlebury, R., M.B., Ch.B. Vict., Mitchell, D. E. L., M.R.C.S., L.R.C.P., Anderson, J. K., M.B., Ch.B. Vict., Moll, G. S. W., M.B., Ch.B. Vict., Roff, C. D., M.B., Ch.B., House Surgeons; Gerrard, E. A., M.B., Ch.B. Vict., House Surgeon Specials Department; Mumford, P. B., M.D. Vict., re-appointed Assistant to the Dermatologist; Linford, Hilda, M.B., Ch.B. Vict., Clinical Assistant, Surgical; Langford, G. F., M.B., Ch.B. Vict., Resident Clinical Pathologist; Ellis, R., M.B., Ch.B. Vict., Cardiographic Registrar; Morris, L., F.R.C.S. Eng., Surgical Registrar; Whitrow, F., M.B., Ch.B. Vict., Clinical Assistant, Medical; Susman, W., M.D., Junior Pathological Registrar; Drinkwater, S. W., M.B., Ch.B. Vict., Second Surgical Registrar; Gow, J., F.R.C.S. Vict., Assistant Surgical Officer at the Central Branch; Sutherland, D. M., F.R.C.S. Eng., Assistant Surgical Officer; Edwards, M. E., M.B., Ch.B., Vict., Stubbs, J. B., M.B., Ch.B. Vict., Assistant Medical Officer at the Central Branch.

Vacancies.

For further information refer to the advertisement columns.

Bethlem Royal Hospital, Lambeth-road, S.E.—Jun. Asst. P. £350.
Bradford Royal Infirmary.—H.S. £150.
Bury St. Edmunds, West Suffolk General Hospital.—Res. H.S. £180.
Cambridge, Addenbrooke's Hospital.—Electrical and X Ray Dept. Asst. P.
Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.
Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. Surg.
Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.—Asst. S. Also Hon. Asst. Anæsthetist.
Chichester, West Sussex County Mental Hospital—Med. Supt. £900.
City of Sheffield.—Jun. Asst. Tub. O. £350.
Coventry and Warwickshire Hospital, Coventry.—Res. H.S. £125.

Freemason's Hospital and Nursing Home, 237, Fulham-road, Chelsea, S.W.—Res. M.O. At rate of £250.
Great Yarmouth General Hospital.—H.S. £150.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. P.
Hospital for Sick Children, Great Ormond-street, W.C.—Bio-Chemist. £600.
Kingston-upon-Hull, Infectious Diseases Hospitals.—R.M.O. £547 9s. 5d.
Lancashire Education Committee, Edge Hill Training College, Liverpool.—Visiting Med. O. 100 guineas.
Lancaster County Mental Hospital.—Med. Supt. £800.
Leeds, Jewish Herzl Moser Hospital, Leopold-street.—Res. M.O. £50.
Liverpool, Brownlow Hill Infirmary.—Res. Asst. M.O. £200.
London Female Lock Hospital, 283, Harrow-road, W.—Hon. Obstet. S.
London Temperance Hospital, Hampstead-road, N.W.—Hon. P. Also Clin. Asst. in Cas. Dept.
M.A.B. Highwood Hospital for Children, Brentwood, Essex.—Jun. Asst. M.O. for cases of Pulmonary Tuberculosis. Also Jun. Asst. M.O. in Mental Hospital Service. Each £500.
Macclesfield General Infirmary.—Second H.S. £150.
Manchester, Ancoats Hospital.—Anæsthetist. 10s. 6d. per attendance. Also Pathological Registrar. £100.
Manchester Corporation, Public Health Dept.—Asst. M.O.H. (Maternity and Child Welfare). £850. Also Asst. M.O.H. £750.
Manor House Hospital, Golders Green, N.W.—Asst. S. £750.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Asst. P. and two Asst. S.'s.
Northumberland, Wooley Sanatorium, near Hexham.—Med. Supt. £850.
North Middlesex Hospital, Edmonton, N.—App. to Medical Electricity and Light Department. 3 guineas per session.
Norwich, Norfolk and Norwich Hospital.—H.S. for Ear, Nose and Throat and Ophth. Dept. £120.
Otago University and Dunedin Hospital, New Zealand.—Medical Tutor and Sen. Res. M.O. Also Sen. Res. Surg. O. Each £400.
Penshurst, Kent, Cassel Hospital for Functional Nervous Disorders. Res. M.O. £350.
Royal Free Hospital, Gray's Inn-road, W.C.—Sen. Res. M.O. £150.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Non.-Res. Cas. O. £150. Also H.S. At rate of £100.
St. Mary's Hospital, W.—Phys. for Mental Diseases.
Sheffield, Winter-street Hospital.—Jun. Asst. Tub. O. £350.
West London Hospital, Hammersmith, W.—Phys.
Winchester, Royal Hampshire County Hospital.—Res. M.O. £200.
Woolwich Union Infirmary, Plumstead High-street, S.E.—Second Asst. M.O. £300.

Births, Marriages, and Deaths.

BIRTHS.

MACFIE.—On Oct. 13th, at "Penrhyn," Bayshill-road, Cheltenham, the wife of R. Bute Macfie, F.R.C.S. Edin., of a son.
MURPHY.—On Oct. 14th, at Hernbury House, Linthorpe, Middlesbrough, the wife of Robert Walpole Murphy, O.B.E., M.D., of a daughter.

MARRIAGES.

GRIMMER—SELWYN.—On Oct. 7th, at Holy Trinity Church, St. Nicholas-road, S.W. 17, by the Rev. J. W. Craufurd, Murray, M.A., Vicar of the Parish, George Kerr Grimmer, B.A., M.D., F.R.C.S.E., 282, Balham High-road, S.W. 17, and 11, Wimpole-street, W. 1, to Lilian Florence Nash Selwyn, widow of George Alexander Selwyn, 23, Boundaries Mansions, S.W. 12.
SCHOFIELD—ATKINSON.—On Tuesday, Oct. 12th, at the Parish Church, Morecambe, by the Rev. T. H. Bywater, M.A., vicar of Outwood (uncle of the Bridegroom), assisted by the Rev. T. Mercer, M.A., vicar of St. Anne's, Lancaster, and the Rev. E. A. Seymour Scott, M.A., rector of Morecambe, James Mortimer Schofield, M.R.C.S. Eng., L.R.C.P. Lond., elder son of the late C. D. Schofield, of Bradford, and of Mrs. Armitage, Minden Bray, Epsom Downs, Surrey, to Marjorie, elder daughter of T. Atkinson, Esq., J.P., and Mrs. Atkinson, of Berwyn, Morecambe. At Home Nov. 2nd, Gairloch, Bare, Morecambe.

DEATHS.

ALLAN.—On Sept. 8th, at The Peak, Hong-Kong, James Cyril Dalmahoy Allan, M.D., in his 45th year.
GABELL.—On Oct. 14th, at his residence, South Croxted-road, Dulwich, Douglas Phillimore Gabell, M.R.C.S., L.R.C.P., L.D.S. R.C.S.E.
GIBBONS.—On Oct. 15th, suddenly, in his surgery, at Malden-crescent, N.W., while attending a patient, Charles James Preston Telford Gibbons, M.R.C.S., L.R.C.P.
LAPAGE.—On Oct. 14th, at Dolywern, Charles Clement Lapage, M.A., M.D. Cantab., M.R.C.S., L.S.A. (retd.), aged 75 years. Late of Nantwich, Cheshire.
PARRY.—On Oct. 12th, at Ty Newydd, Carnarvon, North Wales, Dr. Robert Parry, J.P., aged 71 years.
PARSON.—On Oct. 11th, at Bondfield, Bursledon, Hampshire, Henry Parson, M.R.C.S., L.R.C.P., aged 75 years.
REDMOND.—On Oct. 13th, at Scorton, Yorkshire, Charles Stennett Redmond, M.D., aged 83 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

PUBLIC HEALTH IN GERMANY.

ON Monday, Oct. 18th, Prof. Rudolf Abel, of the University of Jena, gave, at the Royal Society of Medicine, the first of two Chadwick lectures on the Development and Present State of Public Health in Germany. The main object of the lectures is to compare English and German conditions and explain the reasons for their difference.

After describing the bad state of affairs at one time prevailing in Germany, Prof. Abel referred to the progress in hygiene noticeable during the eighteenth century—progress which ceased, however, owing to the poverty caused in Germany by the wars of Napoleon. This poverty did not allow of many improvements being made, a notable exception being a campaign against small-pox, following the investigations of Jenner into vaccination. About 1840 England undoubtedly took the lead in hygienic legislation and practical sanitation, since her industrial development obliged her to pay attention to these matters. In this respect she was for a long time the instructor of Germany, whose special contributions to knowledge were rather those of Pettenkofer in scientific hygiene and Robert Koch in bacteriology. It was only after the foundation of the German Empire, in 1871, that practical measures of public health underwent much development. The conversion of Germany from a generally agricultural country into an industrial one, and the enlargement of towns which this involved, was carried out without any damage thanks to improvements in hygiene; and, in fact, sanitary conditions steadily improved.

To the late war Prof. Abel attributed very serious impairment of the public health due to the blockade. Nearly 800,000 persons perished in Germany from want of food and from diseases consequent on it, and the development of children suffered greatly. Since its end, however, all possible measures have been taken, in spite of economic distress, to improve the standard of public health again; these measures are having good results.

Referring to health legislation and administration, Prof. Abel pointed out that the establishment of institutions for public health rests in Germany, as a matter of course, on the local authorities, who do not need any special authorisation by a Public Health Act as they do in England. Medical officers of health are all State officials and receive their salaries from the Government, but the cost of institutions and works is borne by the local authorities, and only exceptionally by the State, whose expenditure for sanitary purposes is, therefore, small.

In conclusion, Prof. Abel showed comparative diagrams and tables of the mortality- and birth-rates in England and Germany. During the past 50 years mortality has been falling more in Germany than in England, so that the two countries are now nearly on a level; but the birth-rate is decreasing in Germany more than in England. This latter fact is causing anxiety in Germany, and efforts are being made to raise the birth-rate, to reduce infant mortality, and to improve the health of children.

Prof. Abel expressed his satisfaction that interest should be shown in England in German hygiene; in Germany, he said, English public health work is carefully studied.

SUDDEN WHITENING OF THE HAIR.

THE *Bruxelles Médical* has been holding an inquiry into this intriguing riddle of the whitened hair, and in a recent issue it reprints from the *Revue Pratique de Biologie Appliquée* a survey by Mr. Carrion, the well-known biologist, of the literature on the subject. He has had no trouble in finding instances among the ancients, for they were full of the phenomenon, and the chief difficulty of the annotator was to choose. His first example is a delightful one from Aventinus in the Annals of the Boii. The Emperor Louis was away at the wars, and his wife sent him a letter with a black seal. To the same messenger she entrusted a letter to her lover with a red seal, but the man mixed up the two letters. The enraged Emperor left his armies and returned home at top speed, where he executed his wife, stabbed her girl accomplice, and threw the keeper of the women's quarters from the ramparts. In a paroxysm of remorse for this triple slaughter he saw a vision so horrible that his hair turned white. As a form of penance he built and endowed a monastery, but Aventinus omitted, as Mr. Carrion remarks, to relate whether this treatment succeeded in restoring his hair to its normal colour. The story is typical of all the other traditional examples, which give as the cause of the hair turning white imprisonment, a death sentence, or the slipping of the rope from which a birds-nester hung on a cliff face. The phenomenon has always had a powerful appeal to superstitious minds, and it is recorded that a pope, who had refused a bishopric to a candidate, changed his mind when the man appeared next morning with white hair.

Schenkins tells of a peasant whose beard grew white upon certain birth marks which were due to a fright his mother had sustained during pregnancy. More recent is the note in Charcot's "General Anatomy" of a passage in Alibert describing the effect on a man of three pieces of bad news which he had received at different times in his life; the first turned half his beard white, the second turned the hair on the same side of his head, and the third whitened a tuft of hair that grew on his shoulder. Sollier reported to the Society of Military Medicine and Surgery of Montpelier in 1916 the case of a soldier who had been buried for half an hour in a mine explosion and who was treated for a severe burn on his face. When the dressing was removed three days later the growing hair was quite white; the patient also suffered from epistaxis, headache, generalised spasm, and mental confusion. These symptoms and the whiteness both disappeared by degrees. The soldier admitted that he had been extremely frightened at the time. Mr. Bernard, who conducted our contemporary's inquiry, produced among three examples one of a woman spy of 32 who was sentenced to be shot. When she was led out at dawn of the following day her chestnut hair had turned white. Captain Prother, of the *Carpathia*, who went to the aid of the stricken *Titanic*, tells that most of the corpses taken from the water, even the children, had white hair. The explanations suggested by modern authorities are disappointing. That of Landois and Pfaff in the last century, that the skin had secreted, under the influence of emotion, a bleaching substance akin to chlorine, and that of Mr. Bertrand, that movement in the sympathetic part of the cortex set up an aberrant reflex action which might inhibit the supply of pigment, do not speak well for the neurological science of that time. Mr. Fafner, expounding in the *Libre Belgique* his hypothesis of a neuropsychological inhibition of thyroid secretion, does at any rate indicate a line of possible inquiry, but no one has improved on Lemnius, who said that the same mechanism that drove the blood from the skin drove inwards also the fluid with which the skin nourished the roots of the hair. If the phenomenon of sudden blanching does exist—and the circumstantial evidence for its existence is strong—the answer will presumably come as a by-product of new investigation into the working of the sympathetic nervous system. Meanwhile, the riddle remains unanswered. Incidentally, if Mr. Carrion is always as entertaining as he is in this summary, it must be a joy to learn biology from him.

A STUDENTS' GUIDE.

"Technical Education," by Mr. J. C. Ghosh, B.Sc., F.C.S. (Thacker, Spink and Co., Calcutta and Simla, 1926, pp. 316, Rs.4.8), is a guide to careers for young Indians in the public services, commerce, and industry. Since the author is the principal of the Calcutta School of Technology the larger part of the book is devoted to this subject and its possibilities. These lead him to a discussion of the public health problems of his country, and the scope for research and routine work in such subjects as the value and standardisation of indigenous drugs, scientific agriculture, preventive medicine, chemical analysis, and the provision of pure bread. The appendices form a students' guide to the educational facilities and government services of the country, including the Indian Medical Service.

NATIONAL COUNCIL FOR THE UNMARRIED MOTHER AND HER CHILD.

THE work of the National Council for the Unmarried Mother and her Child, which has just issued its eighth annual report, is becoming more stable and more widely recognised as the years go by. Not long ago a sum of £500, left by the late Mr. Hector Sassoon for the benefit of unmarried mothers and their children, was allocated by the executors to the Council as the most suitable national organisation to deal with it. This fund made it possible to pay for the third year a retaining fee for a bed and cot in a Church Army hostel, to make grants towards maintenance in a home or hostel, and to send a number of tired mothers with their babies to the seaside for a short holiday. The Council is specially interested in legal reforms affecting children born out of wedlock, and it was a disappointment that the Legitimacy Bill again failed for lack of time in the House of Commons. The help of a good friend was lost on Captain G. E. W. Bowyer's appointment as Government Whip, in which position he is unable to take any active part in the Council's parliamentary work. Captain A. V. Cazalet has now undertaken to watch its interests in the House of Commons. Evidence was given by the hon. solicitor, Mr. Warden Gowing, before the Poor Persons' Legal Aid Committee, to press the need for legal aid to unmarried mothers in affiliation cases, and information was collected in connexion with health insurance and the payment of maternity and sickness benefit to unmarried mothers. The case committee registered 765 new cases during the year ended May 31st, 1926, this being 128 more than in the previous twelvemonth. An inquiry into the expenditure in residential homes was carried out by the consultative committee on homes and hostels. The Council has made efforts to forge links with similar organisations in other countries; it was represented at the first international congress on child welfare, held in Geneva, and on a special committee of the British Auxiliary Societies of the International Woman Suffrage Alliance, meetings of which were held in Paris. One of the sessions of the fourth English-speaking Conference was arranged by the Council, when the subject chosen for discussion was "The Churches and the Child"; two conferences were held at Carnegie House, on "Infant Mortality of Illegitimate Children, and Some Methods of Coöperation by which it might be further reduced," and "Coöperation between District Nursing Associations and Rescue Organisations in dealing with Unmarried Mothers." The general secretary of the Council is Miss Susan Musson, at 117, Piccadilly, London, W. 1.

MEDICAL ADDRESSES.

Mr. Alfred Rose, of the Addressing Company, Ltd., 56, Chancery-lane, W.C. 2, has been to the trouble of preparing a complete set of medical stencils and of keeping them scrupulously up to date by reference to examination lists, obituary notices, calendars, and so forth. The result is that the company is ready at any time to provide a set of envelopes addressed to all the medical men and women on the Medical Register, or to some selected group of these, such as practitioners in Scotland, or Canada, medical women, or Fellows of one or other Royal College. The point is made that every medical man and woman has been addressed in strict accordance with professional etiquette and with the chief degrees or qualifications, continually corrected as necessary. The list contains upwards of 50,000 names, carrying the practitioner's date of registration which can be printed with the address or deleted as required. Card indexes can also be prepared from the same stencils, and so sure is the compiler of the accuracy of the list that he offers to refund postage on every envelope sent with his stencil to any address in the United Kingdom and returned as undeliverable. The charge for straight addressing from the stencils is 12*s.* 6*d.* per thousand, quotation being offered for special lists or selection.

SPECTROSCOPY OF X RAYS AND ULTRA-VIOLET RADIATION.

WE have received from Messrs. Adam Hilger, Ltd., two brochures dealing with spectrometers and spectroscopes. One contains the description of three X ray spectrometers, which are arranged not only for determinations of X ray wave-lengths, but also of the space lattice structure of crystals and powders. These will be of considerable interest to those engaged in radiological work. The other gives a description of a simple ultra-violet spectroscope, which has been designed particularly for investigation of the constitution of the radiations from the ultra-violet lamps used in the practice of light therapy, but forms also a useful instrument for physical and other laboratories. It has quartz lenses and prism, with a fluorescent screen on which the ultra-violet spectrum can be seen. Above this screen is a boldly engraved wave-length scale which serves to denote the position which the radiations occupy in the spectrum. The whole instrument is in constant adjustment, and requires no further manipulation than to direct its slit at the light source. A suitable cloth is provided, with which the back of the instrument and the observer's head may be covered, to facilitate observation by excluding stray light from the fluorescent screen. On covering the head with the cloth provided it is seen that, besides the visible spectrum on the narrow whitened strip at the right-hand end of the fluorescent screen, there are a number of bands of a green hue appearing to the left of this. These correspond to the ultra-violet radiations from the lamp; their position in the spectrum can be determined by reference to the small scale just above them. In this scale the enumeration is in hundreds of Angstrom units. Thus 23 corresponds to 2300 A. Possessing data for the relative values of various radiations in terms of therapeutic effect, it is thus possible to obtain a rapid and accurate estimate of the value of the light source for treatment work. The usefulness of this instrument in testing the absorption of protective windows and goggles, and in observing the ranges of transmission of filters and arc protectors will be readily seen. The necessity of checking the protective value of goggles has been emphasised in a paper by B. D. H. Watters in THE LANCET (1925, ii., 495).

Messrs. Allen and Hanburys announce that for the convenience of prescribers the morphine content of Liquor Opii Sedativus (Battley) has been increased from 1·5 to 1·8 per cent. so that each fluid drachm now contains 1 gr. morphine. The dose is thus reduced from 5–15 ℿ. to 5–10 ℿ.

COLONIAL HEALTH REPORTS.

BARBADOS.

BARBADOS, the most easterly of the West Indian islands, is a little more than half the size of Anglesey. In a report by Mr. J. B. Howell, Acting Colonial Secretary for the year 1924–25, it is stated that the population of the colony on Dec. 31st, 1924, was estimated to be 159,499, but as this estimate depends on emigration and immigration figures, which experience has shown to be often seriously inaccurate, not much reliance can be placed upon it. According to the census of 1921 the black population numbered 111,677; the number of whites being 10,429, and of mixed 34,216. The birth-rate during 1924 was 32·91 per 1000, and the death-rate 29·54. The percentage of illegitimate births was 68·24. Up to the end of 1924 no registration of the causes of death was available, but from Jan. 1st, 1925, a Registration of Deaths Act came into force, and in the future it will be possible to give information as to the principal causes of death. The number of infant deaths per 1000 births in 1924 was 298, as compared with 220 in 1920, 401 in 1921, 187 in 1922, and 371 in 1923. Barbados enjoys natural and climatic advantages from a health standpoint such as can scarcely be found in any other tropical place. Malaria is unknown, there are no extremes of heat or cold, the soil is well drained, and the water-supply very good; it is, moreover, constantly swept by the trade winds. In these circumstances it is an unusually healthy place of residence for all who are able to secure themselves freedom from insanitary surroundings. Enteric fever and dysentery are, however, unfortunately common. The number of cases of enteric notified during the last five years has been: 1920, 1012; 1921, 3070; 1922, 1084; 1923, 735; 1924, 762. The ordinary type of enteric fever cases is of a mild character. Proposals for a comprehensive review of the system of public health organisation have been placed before the Legislature by the Government at the suggestion of the Secretary of State. The question is one which is full of more than usual difficulty owing to the density of population and existence of vested rights, but the high and fluctuating death-rate, combined with undue prevalence of enteric fever, indicates unmistakably that improved sanitary methods are an urgent need. Apart from the conditions referred to the island is exceptionally healthy and remarkably free from epidemic disease. A venereal disease clinic, established at the General Hospital in 1922, has been attended by steadily increasing numbers. Subsidiary clinics in other parts of the island are much needed. The treatment of inmates of the Leper Asylum with ethyl esters of chaulmoogra oil has been continued with very hopeful results in a number of less advanced cases. Four cases were discharged as cured during the year, and there are at the present time several cases waiting the holding of medical boards to decide whether they can be discharged. All cases that are discharged are required to show themselves to the medical officer of the asylum every three months with a view to his ascertaining whether there has been any return of the trouble. In June, 1924, a riot occurred in the Leper Asylum, when some of the inmates assaulted and beat the superintendent, who had been recently appointed to improve the discipline of the institution. The police had to intervene and the ringleaders were convicted and removed to the Government gaol where they were specially segregated. The majority of the inmates sympathised with the superintendent, and on his return to duty with changes in his staff he has had no trouble in enforcing discipline, and the institution is now in a quiet and satisfactory condition.

BASUTOLAND.

This native territory in South Africa has an area of 11,716 square miles; the altitude varies from 5000 ft. to 11,000 ft. above sea-level, and the climate is, on the whole, healthy. The census of 1921 showed a population of 495,937 natives, 1603 whites, 1069 coloured, and 172 Asiatics. Mr. R. B. Smith, Government Secretary, in his report for 1925, states that during the year 59,295 patients were treated at the Government dispensaries, in addition to 2221 in-patients in the hospitals of Maseru, Leribe, Mafeteng, Mohale's Hock, and Quthing. 2148 operations were performed in 1925. It is hoped to have the new hospital at Qacha's Nek in full working order this year.

The general health of the territory has been very good. Typhus fever, which has been endemic since 1917, has almost disappeared, only 51 cases with four deaths being reported in 1925, as compared with 556 cases and 41 deaths in 1924, and 958 cases with 120 deaths in 1923. This gratifying result in due to the natives appreciating the cause of the disease and taking necessary precautions. The epidemic of small-pox in the centre of the country, which was reported last year, was got well in hand. 26,632 persons were vaccinated. Influenza and dysentery were responsible for 589 and 130 cases respectively, and were of mild type. The free treatment of syphilis has been continued and the number availing themselves of the privilege is increasing every year. Certain European missionaries who live in remote parts of the territory have been given a supply of the remedies for distribution in these areas and with excellent results. The sanitary condition of the various Government reserves has been very much improved by the provision of latrines, &c., for the use of the native inhabitants. Outside the reserves it is not possible to do much as yet except in the way of instruction in simple hygiene when opportunity offers at the dispensaries. On Dec. 31st the numbers of inmates at the Leper Settlement were—males 228, females 233, total 461. Except for minor fluctuations throughout the year the population was stationary. The cases of desertion were considerably more numerous in 1925 than in previous years, and, paradoxical as it may seem, the increase was due to greater prosperity. Most of the desertions occurred immediately after the inmates had been paid for their exceptionally large crop of maize, and it is presumed the less provident went out to spend the money. It is satisfactory to note that of those previously discharged as cases of arrest of the disease only two—one male and one female—had to be readmitted as recurrences, and one female had to be readmitted on account of the lack of proper care outside. The general health of the institution has been good and there was particular freedom from epidemic disease.

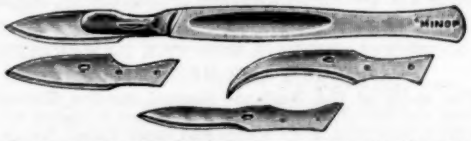
The intensive treatment for leprosy still continues to be rigorously pushed with more or less gratifying results. Dr. Eric Slack, the medical officer of the settlement, went to India towards the end of the year for the purpose of studying the disease there and at the Calcutta centre for leprosy research. Much is hoped from his visit in the way of improved treatment. The farm in connexion with the settlement produced excellent crops of maize, oat forage, hay, ensilage, &c., and the dairy provided 13,680 gallons of milk. Carrots and Swedish turnips were sown for the use of the lepers, who ate them raw for their vitamin content. These raw vegetables had an excellent antiscorbutic effect and rendered the purchase of oranges unnecessary.

ZORBO JOINT JACKETS.

WE have received from Messrs. Robert Bailey and Son, Ltd., Marriott-street Mills, Stockport, samples of "Zorbo" joint jackets which are designed for use in the treatment of sciatica and kindred ailments. They are made of a layer of cotton-wool sandwiched between gauze, and are shaped to fit the chest and back, the shoulder, elbow, wrist, knee, and groin. These dressings are kept in position by means of tapes and buckles and they readily absorb and retain any kind of liniment prescribed by the physician. They promise to be a comfort to the patient and a convenience to the medical attendant.

THE "MINOP" SURGICAL KNIVES.

THE "Minop" for minor operations, shown in the illustration, and manufactured by the Holborn Surgical Instrument Company, Ltd., 26, Thavies Inn, Holborn Circus, London, E.C. 1, is made with interchangeable blades so that one handle can be used to carry different kinds of blades as



may be required. Each blade is pierced with three holes, two of which engage corresponding pins in the handle, while the third hole receives the stud of a lever clamp which securely holds the blade in position. A new blade can be fixed to a handle in a few seconds, and one great advantage of the arrangement is that a sharp knife can always be available. The blades are made of cold rolled Sheffield steel and these are hardened, polished, ground, and set by hand. Metal or leatherette pouches to carry one handle and six blades can be supplied by the company as well as tubular carriers with rack for carrying the handle and blades sterilised in alcohol.

PINE OIL PREPARATIONS.

Messrs. Roberts and Co., wholesale pharmacists, 76, New Bond-street, have sent us specimens of two preparations of pine oil, "Pinolac" and "Pine Needle Spirit." Pinolac is a toilet article intended for use in the bath, the pine oil employed in its preparation being *Oleum pini pumilionis*. Four tablespoonfuls should be added to an ordinary bath of hot water, one tablespoonful to a hip bath, or a teaspoonful to a child's bath. Pine needle spirit is a solution of the same oil in spirit and is intended for vaporising or spraying either in the sick room or the ordinary dwelling-room. Both preparations are pleasant in use.